Conflicted Advice and Second Opinions:

Benefits, but Unintended Consequences

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Abstract

Second opinions have been advocated as an antidote to bias in advice when primary advisors have conflicts of interest. In four experiments, we demonstrate how primary advisors alter their advice due to knowledge of the presence of a second advisor. We show that advisors give more biased advice and adopt a profit-maximizing frame when they are aware of the mere availability of a second opinion. The bias increases when primary advisors are aware that the second opinion is of low quality, and decreases when they know the second opinion is of high quality and easy to access. Both economic concerns (e.g., losing future business) and noneconomic concerns (e.g., concern that a second advisor will expose the poor quality advice) decrease bias in primary advisors' advice. Based on these findings, we discuss circumstances in which second opinions are likely to be beneficial or detrimental to advice-recipients.

Keywords: advice, bias, conflicts of interest, second opinions, judgment, ethical decision making, rationalizations, advisors, influence, behavioral economics, behavioral ethics, morality, ethics, moral disengagement

> "If a company's adviser has a conflict, the "best practice" for a corporate board is to hire a second unconflicted adviser to help cleanse the first adviser."
>
> (Andrew Ross Sorkin, New York Times, 03/12/2012)[1]

Second opinions are frequently advocated to improve decision-making, particularly when primary advisors have an agenda or conflict of interest that may bias their advice. For example, home sellers who recognize that real estate agents have an incentive to price properties low to get a faster sale (Levitt & Dubner, 2005) can pay a fixed fee for an appraisal from a different realtor. The second realtor will be less conflicted since they will not be selling the home and thus may give a more accurate appraisal. Similarly, a patient whose doctor recommends a drug but also discloses a consulting relationship with the pharmaceutical company that produces the drug, might visit another doctor who is not conflicted by industry relationships for a second opinion. In each of these scenarios, a decision-maker receiving advice from a conflicted advisor has the option of seeking a second opinion from an unconflicted advisor.

Second (and more generally multiple) opinions are known to improve judgments when advisors are prone to random error (Hastie & Kameda, 2005; Soll & Larrick, 2009; Surowiecki, 2004; Taylor & Potts, 2008; Yaniv, 2004). In medicine, second opinions have been shown to improve breast cancer screening, prognosis and treatment (Staradub, Messenger, Hao, Wiley, & Morrow, 2002; Taylor & Potts, 2008) and reduce unnecessary surgeries (Kronz, Westra, & Epstein, 1999; Martin et al., 1982). Second opinions could also be valuable for reducing the negative impact of primary advisors' conflicts of interest in the many situations in which consumers are reluctant to seek them. Schwartz, Luce and Ariely (2011), for example, found

[1] Ross Sorkin reporting on the most talked-about idea at an annual corporate attorney conference.

that dental patients were more likely to receive unnecessarily expensive treatment from a dentist they had interacted with over a longer period of time. Second opinion services are common in professional consulting areas such as engineering, finance, strategy, and law (Sarvary, 2002). In this paper, we investigate whether second opinions can help to neutralize the negative effects of conflicted advice, as well as the impact on conflicted primary advisors when they are aware that their advisees will, or can, seek a second opinion.

Quality of Advice from the Primary Advisor

How might awareness that an advisee will, or even could, seek a second opinion affect the quality of advice from a conflicted primary advisor? Figure 1 outlines the main factors that could impact the primary advisors' advice once they are aware of the presence of a second opinion.

On the one hand (see left hand side of Figure 1), the potential for advisees to obtain un-conflicted second opinions could *improve* the quality of advice from the first advisor. An advisor who is aware that an advisee will receive an unbiased second opinion may decrease the bias in their advice so it is not too obviously discrepant, in a self-serving direction, from the advice provided by the second advisor. This could be due to economic or noneconomic reasons.

Economic reasons for improving advice quality include concerns regarding the loss of future business due to reputational damage or sanctions for giving biased advice. This is likely to increase if advisors believe the quality of their advice could be verified. Primary advisors who are concerned about their reputation, sanctions, or believe there are repeated interactions with advisees, should be more likely to consider the economic costs of giving biased advice, and rein in the bias in their advice.

Non-economic reasons that could lead to an improvement in the quality of advice from the primary advisor are the anticipation of shame or other social concerns if the advisee becomes aware of the bias in the primary advisor's advice. People's behavior are shaped by both economic and noneconomic outcomes. Regardless of economic benefits, most people are motivated to view themselves, and for others to perceive them, as moral, ethical, and honest (Aquino & Reed II, 2002; Crocker & Knight, 2005; Jordan & Monin, 2008; Mazar, Amir, & Ariely, 2008; Sah & Loewenstein, 2014). Social concerns (shame or concern for social reputation) would encourage primary advisors to provide less biased advice so that they would not be viewed as selfish or unethical. Providing less biased advice also decreases the need to be faced with a harsh comparison of the gap between the self's action and the self's standards or perceived social standards. Similar to economic concerns, this effect is likely to be greater to the degree that the truth will ultimately be revealed, illuminating any bias in offered advice. The truth is more likely to be revealed, and hence social concerns exacerbated, if the quality of the second opinion is high and if the cost or ease of access to obtain the second opinion is low.

On the other hand, knowledge that an advice recipient might receive a second opinion could provide primary advisors with a rationalization for giving biased advice (right hand side of Figure 1). A diversity of research shows that people are more likely to engage in ethically questionable behavior when they can rationalize doing so (Anand, Ashforth, & Joshi, 2004). For example, potential aid-givers—'dictators' in the 'dictator game'—who are given a reason for being in the privileged position (Hoffman, McCabe, Shachat, & Smith, 1994), or presented with some uncertainty about the connection between their action and the outcome (Dana, Weber, & Kuang, 2007), act more selfishly. Physicians who are presented with the implicit or explicit rationalization that they might deserve industry gifts due to their grueling training, long working

hours and low salaries, are more likely to view accepting industry gifts as ethical (Sah & Loewenstein, 2010). And, people also feel less responsible for, and are less generous towards, aid-recipients who have another potential source of aid (Cryder & Loewenstein, 2012).

Rationalizations that justify self-interested behavior

People regularly engage in unethical acts without violating their moral self-identity (Bazerman & Tenbrunsel, 2011; Mazar et al., 2008; Moore, Detert, Treviño, Baker, & Mayer, 2012). To retain a positive view of oneself and also indulge in self-interested but immoral behave, people either cheat—but just a little in order to maintain their self-concept of being an honest person (Fischbacher & Heusi, 2008; Mazar et al., 2008)—or rationalize their unethical behavior in order to view their actions as acceptable; a process closely related to moral disengagement (Bandura, 1990, 1999; Moore, 2008; Moore et al., 2012).

Although professionals often succumb to bias at a subconscious and unintentional level (Bazerman & Tenbrunsel, 2011; Dana & Loewenstein, 2003; Sah, 2012; Sah & Fugh-Berman, 2013), in some situations advisors who provide biased advice will not be able to avoid being aware that they are doing so. For example, stock analysts who are shorting stocks they recommend to clients should have difficulty convincing themselves that they are acting in their clients' best interests. Similarly, in the first three experiments presented in this paper, given that primary advisors were aware of the true value of the quantity they were providing advice about, any bias in the advice they provided had to be conscious and deliberate. In such situations—when self-interest can only be satisfied by consciously lying—the cost to individuals of acting unethically is likely to be higher than when the bias occurs at a subconscious level. To maintain a self-concept of being honest while simultaneously behaving dishonestly in this situation,

advisors would have to find rationalizations to justify their actions (Tenbrunsel & Messick, 1999, 2004).

Prior research has demonstrated that people derive value from having justifications to behave in a self-interested manner (Dana et al., 2007; Hoffman et al., 1994; Sah & Loewenstein, 2010; Shalvi, Dana, Handgraaf, & De Dreu, 2011). The potential for advisees to obtain second opinions could provide, or bolster, a number of possible rationalizations that primary advisors might use to justify giving more biased advice. One possibility is that advisors might feel that they need not be generous toward an advisee who displays, or is in a position to display, distrust toward them by seeking a second opinion. Prior research has found that the perception that one is trusted a powerful predictor of generosity (Berg, Dickhaut, & McCabe, 1995).

The Oxford English dictionary defines trust as a "Firm belief in the reliability, truth, ability or strength of someone or something," and as "Acceptance of the truth of a statement without evidence or investigation." Ronald Reagan's invocation of the Russian proverb "trust but verify" in his arms negotiations with Gorbachev got so much attention because the two key words in the phrase seem to be oxymorons. If trust means not having to verify, then the fact that someone does bother to verify, or – a short step away – would be in a position to do so, for example, with a second opinion, could be interpreted as a signal of trust's absence. The absence of trust then positions the parties in the realm of what Fiske (1992) calls a "market pricing" relationship in which the main issue of interest is how the interaction can benefit the self, and the restrictions on maximizing gains are largely dictated by legal, as opposed to ethical or normative considerations. Advisors could therefore reason that the potential for a second opinion diminishes ethical concerns and legitimizes commercial market-place norms.

Prior research has shown that the introduction of a subsidy or fine can undermine altruistic motives and transform social obligations into commercial exchange relationships (Bénabou & Tirole, 2006; Gneezy & Rustichini, 2000; Heyman & Ariely, 2004). Similarly, once a primary advisor discovers that an advisee has alternative or additional sources of advice, professional obligations, or norms guiding behavior in personal relationships, may be disregarded in favor of commercial and market-place norms that legitimize acting in a self-interested fashion. If the ability to obtain a second opinion evokes commercial or market-place norms, advisors may adopt a profit-maximizing frame that favors the provision of self-interested, biased, advice. This profit-maximizing frame may work as a mediator explaining the relationship between the presence of a second advisor and giving biased advice. More generally, if advisors are reframing the ethical implications of the situation, their rating of ethicality should also mediate the relationship between the presence of a second advisor and giving biased advice.

Optional and costly second advisors

A common feature of second opinion markets is that advisees often face a choice of whether to obtain a second opinion. Second opinions are often costly for advisees, both in terms of money and time, and, to the extent that they delay important decisions, possibly even psychological anxiety. Logically, to the extent that these factors, or others, discourage advisees from obtaining second opinions, this should undermine rationalizations for providing biased advice that the potential for a second opinion might otherwise confer. It is possible, however, that advisors don't think about second opinions in such a logical fashion – i.e., use them to rationalize providing biased advice only if it is known that advisees have sought a second opinion; the simple *availability* of a second opinion, regardless of whether it is likely to be obtained, could lead to rationalizations, and hence to biased advice from conflicted advisors.

Prior research found that even physicians who rejected the rationalization that poor working conditions justified accepting industry gifts, were more likely to report that such gifts were acceptable when reminded of their professional hardships (Sah & Loewenstein, 2010). Analogously, while advisors, if asked, might report that an unexercised option to obtain a second opinion does not justify giving biased advice, the existence of such an option could still affect their behavior.

Advisees' Decision Making and Trust in the Primary Advisor

Even if the potential for, or reality of, second opinions increases bias in primary advisors, advisees may still benefit from receiving a second opinion, as long as the de-biasing impact of receiving the second opinion more than compensates for the increase in bias from the primary advisor. Much of the prior literature advocates the use of second and multiple opinions (Soll & Larrick, 2009; Surowiecki, 2004; Yaniv, 2004). All of our experiments not only examine the impact of the second opinion on the behavior of primary advisors, but also test whether second opinions, in fact, improve the quality of advisees' decisions.

Whether or not the second opinion improves an advisee's decision will depend on the extent of bias in the conflicted primary advisor's advice, the quality of the second opinion (which is likely, in turn, to depend on the second advisor's expertise and impartiality), the advisee's knowledge of the quality of advice from each source, and the advisee's ability to weigh biased and unbiased advice correctly. Advisees often do not discount enough for biased advice (Cain, Loewenstein, & Moore, 2011; Sah & Loewenstein, 2012), in part because people anchor on initial information given to them and make inadequate or erratic adjustments, even when they

learn that the information was inaccurate or irrelevant (Sah, Loewenstein, & Cain, 2013; Strack & Mussweiler, 1997; Tversky & Kahneman, 1974).

When primary advisors have economic or noneconomic concerns for giving biased advice, we predict that the primary advisor will rein in bias in advice (left hand side of Figure 1), and second opinions should be beneficial. When factors on the right hand side of Figure 1 are activated, given the competing mechanisms operating in different directions (i.e., increased bias in the primary advice and the benefits of a second opinion), we examine, but refrain from making a formal prediction about, whether the second opinion will compensate for the primary advisors' increase in bias, and hence whether the second opinion will, in the net, help or hurt the advisee.

We also examine the relative trust that advisees are likely to have in the primary advisors' advice when they are, or are not, alerted to the potential for obtaining an unbiased second opinion. Advisees with two advisors are able to compare and contrast the advice they receive as well as the difference in the advisor's incentives. Advisees with only one conflicted advisor lack such a comparison point. In prior research, advisees who obtain conflicted next to unconflicted advice reported, perhaps somewhat unsurprisingly, that they would be much less likely to take the conflicted advice than did advisees who received the conflicted advice alone (see Experiment 4, Cain et al., 2011). By analogy we hypothesized that awareness of the existence of an unconflicted second advisor is likely to accentuate the advisee's concern about the primary advisor's bias, and reduce the trust that the advisee places in the primary advisor's recommendation.

Contribution and Overview

The current research contributes to prior literature on second opinions, advice, bias, rationalizations and moral disengagement. We offer the first rigorous investigation of the conditions under which the availability of a second opinion for advisees could lead to biases in primary advisors. Specifically, we investigate the potential for advisors to give more biased advice when they are aware that their advisees have access to a second opinion: a potential unintended consequence of seeking a second opinion.

We also theorize and test the mechanisms behind the quality of the primary advisors' advice and find that the presence of a second advisor can provide a rationalization for primary advisors to morally disengage and give more self-interested biased advice. Further, we examine the moderating impact of factors on both sides of Figure 1, such as the expertise and cost of the second advisor, the ease of detecting biased advice, and the salience of economic and non-economic concerns on the primary advisor's advice. For advisees, we determine whether second opinions are in the net beneficial or harmful to advisees under different conditions.

In the first two experiments, devising incentives that created real conflicts of interest, we examined whether the presence of a second advisor provided conflicted primary advisors with rationalizations to provide more self-interested, biased, advice (right hand side of Figure 1). Both of these experiments set up situations, like those discussed in the opening paragraph, in which an informed primary advisor is conflicted and the advisee has the potential to receive advice from an unconflicted second advisor. Although the second advisor in both experiments was unconflicted, we deliberately did not incorporate other features that would be likely to encourage advisors to reduce bias, such as repeated interactions (which would make advisors concerned about losing future business), or verification of advice by high second advisor

expertise (which could introduce noneconomic social concerns on the part of primary advisors). Therefore, in experiments 1 and 2, primary advisors were more informed than secondary advisors.[2] Given the deliberate absence of the elements from the left hand side of Figure 1 in the first two experiments, we hypothesized that conflicted primary advisors who were aware of the advisee's potential to receive a less informed but unconflicted second opinion would give *more* biased advice compared to conflicted primary advisors who were not aware of a second advisor.

Furthermore, given that the potential for advisees to obtain a second opinion provides rationalizations for advisors to provide biased advice, and could activate commercial norms, we further predicted that making conflicted primary advisors aware of the potential for a second opinion would increase their likelihood of adopting a profit-maximizing frame. We also expect that the extent of the advisor's profit-maximizing frame would mediate (or explain) the relationship between the presence of a second advisor and giving biased advice.

On the advisee side, we expected that the increased bias of advisors who were aware of the second opinion would lead advisees to make less accurate decisions than those who receive a second opinion but were paired with an advisor who was unaware of it. We also examined the impact on advisees of receiving advice from one versus two advisors and predicted that advisees would trust the primary advice less when they had access to a second opinion.

The second experiment follows from the first but adds the realistic element that advisees must pay for second opinions. We expected that just the possibility of an advisee receiving a second opinion would increase the degree of bias in primary advisors' advice, even though they may be less likely to report a profit-maximizing frame. In addition, we investigate whether the

[2] Primary advisors are sometimes better informed, either because they are hired based on knowledge, or have intimate knowledge of the advisees' background and current situation.

degree of bias in the primary advisor's advice is mediated by their assessment of how ethical it is to give biased advice.

The next two experiments examine both noneconomic (experiment 3) and economic (experiment 4) costs for giving biased advice. In the third experiment, we varied the expertise of optional second advisors, giving the unconflicted second advisor perfect information in some conditions so their recommendation would verify, or expose, the quality of the first advisor's recommendation. We also varied the cost to the advisee of obtaining advice from the second advisor. We hypothesized that primary advisors would show more bias when the second opinion was of low quality and hard to obtain (that is, they are less likely to verify the quality of the primary advisors' advice). In the case in which the second advisor was known to be an unbiased expert, and the opinion was inexpensive for the advisee to acquire, we expected primary advisors to reduce the bias in their advice. Furthermore, when advisees had access to low cost well-informed second advisors, we predicted they would give more accurate estimates and trust the primary advice less compared to advisees who had low quality or high cost second advisors.

In experiment four, we introduced economic costs for primary advisors who gave biased advice: Primary advisors were informed that they may give advice on multiple rounds. This was intended to make primary advisors consider the economic costs of losing potential future business from reputational damage by giving biased advice. We therefore predicted that advisors aware of multiple rounds would rein in the bias in their advice.

Experiment 1: Increased bias from primary advisors aware of a second advisor

Using real incentives to set up conflicts of interest, our first experiment examined whether conflicted primary advisors intentionally decrease the quality of their recommendation

when they are aware of the presence of an unconflicted second advisor. We measured both the actual increase in bias and the primary advisors' self-reported profit-maximizing behavior, and examined if the profit-maximizing frame mediated the relationship between the presence of a second opinion and giving biased advice. We also examined the net impact on advisees of receiving an unbiased but less informed second opinion, the weight advisees' placed on each source of advice, and the level of trust in the primary and secondary advisors' recommendations.

Method

Advisors. Participants were alumni from one of the author's universities, and consisted of 244 advisors (52% male; median age category=26-35 years[3]) and 146 advisees (see below). All participants completed the experiment online and were aware that their choices had real monetary consequences. The online nature of the experiment eliminates effects from para-verbal and non-verbal behavior between advisors and advisees. Advisors viewed a 30 x 30 grid of dots; some filled and some clear (Figure 2A), and gave advice to the advisee on the number of filled dots. Advisors knew that advisees would view only a 3 x 3 subset of the grid (Figure 2B), but would be rewarded with a $5.00 Amazon voucher if they accurately estimated (within 10 dots) the number of filled dots on the larger grid.

There were two main types of advisors: primary advisors (n = 146) and secondary advisors (n = 98), see Figure 3A. The two advisors were both rewarded depending on the advisee's response, but in different ways, similar to prior research examining bias due to conflicts of interest (Sah & Loewenstein, 2014). Primary advisors were subject to a conflict of interest; they were aware that they had to provide a recommendation to an advisee who had less

[3] Advisors reported their age category rather than their age.

information than they did and who would be rewarded for accuracy; however, the primary advisors were rewarded if the advisee *overestimated* the number of filled dots, i.e., they received a $5 Amazon voucher if the advisee gave an answer between 1 and 99 dots above the correct number of filled dots, and a $10 Amazon-voucher if the advisee gave an answer that exceeded the correct number of filled dots by 100 or more. Secondary advisors were rewarded with a $5 Amazon voucher if their advisee was accurate (within 10 dots), i.e., their objectives aligned with those of their advisee. In addition, primary advisors were told the correct number of filled dots in the grid (301 of the 900), whereas secondary advisors, like primary advisors, had unlimited access (there was no time restriction) to the full grid, but were not told the correct number of dots.

This set-up was designed to simulate a situation in which an advisee receives advice from a better informed but conflicted primary advisor and a less well-informed but unconflicted secondary advisor. Second opinions were independent of primary opinions; secondary advisors had no knowledge of the primary advice nor desire to compete with, or befriend, the primary advisor, features identified as critical for second opinions to be helpful (Hyman, 1998).

Advisors were informed that advisees would have full information on how the advisor would be rewarded, and advisees were told that their primary advisor had been informed of the correct number of filled dots in the large grid and that secondary advisors had unlimited access to the full grid but were not specifically told the correct number of filled dots. Also, importantly, some of the primary advisors acted as solo advisors (n = 48 out of 146 primary advisors) while others acted as first advisors before advisees received advice from a second advisor (n = 98 out of 146 primary advisors). For primary advisors paired with advisees who would receive second opinions, approximately half (n = 47) were aware of the second advisor, while the remainder (n

= 51) were not (see Figure 3A). Primary advisors who were aware of the second advisor knew that the second advisor was not conflicted, and also that the second advisor was not informed about the correct number of dots but had unlimited access to the full grid.

After giving advice, advisors answered five questions, rating, on a 5-point Likert scale, the degree to which they felt they gave accurate and honest advice or attempted to maximize their own payoff and cared less about helping the advisee: "I attempted to give an accurate recommendation", "I gave honest advice", "I exaggerated my recommendation", "I wanted to maximize my own payoff", and "I wanted to help the advisee." These questions enabled us to assess if advisors were engaging in a conscious profit-maximizing behavior. A factor analysis revealed one component (which explained 74% of the variance) and we averaged the responses (reverse coded where appropriate) to give a "profit-maximizing frame" rating ($\alpha = .91$).

Advisees. One hundred and forty six advisees (58% male, median age category = 36-45 years) received advice from either one ($n = 48$) or two advisors ($n = 98$), along with the small 3 x 3 subset of the dot grid, and were asked to give an estimate of the number of filled dots in the full grid for a reward. Advisees had full information about how the(ir) advisor(s) would be rewarded, were told that primary advisors had been informed of the correct number of filled dots in the large grid, and that secondary advisors had unlimited access to the full grid but were not specifically told the correct number of filled dots. After giving their estimates, advisees then rated, on a 5-point Likert scale, how much they agree or disagree with the statement, "I trusted my advisor's recommendation." As each advisor-advisee pair had no direct visual interaction with each other, we simply measured trust in the advisor's recommendation rather than examining more detailed dimensions of trust such as trust in the advisor's integrity, benevolence or competence (Mayer, Davis, & Schoorman, 1995). Measuring trust with an overall measure of

trust in advice is likely to be strongly correlated with trust in the advisor (Sah & Feiler, 2014) and other multicomponent measures of trustworthiness (e.g., for a review, see Colquitt, Scott, & LePine, 2007; Dirks & Ferrin, 2002).

Results

Advisors.

Advice. Consistent with the incentives they faced, primary advisors, all of whom had a conflict of interest, gave more biased (inflated) advice than secondary advisors, who did not have a conflict (*Mean deviation from correct number of filled dots* (*M*) = 127.18, *SD* = 172.28 vs. *M* = 11.19, *SD* = 66.01), $F(1, 242) = 40.40$, $p < .001$, $\eta^{2} = .14$. Unsurprisingly, since second advisors were not aware of the primary advisors, the quality of their advice did not depend on whether primary advisors were aware of them or not, $F(1, 96) = .62$, $p = .43$, $\eta_p^2 = .006$ (see *Table 1* for means of all dependent variables and *eTable 1* for correlations).

More central to our key hypothesis, primary advisors who knew that the advisee would have a second advisor ($n = 47$) gave *more* biased advice ($M = 173.02$, $SD = 185.43$) than those who were unaware of a second advisor, or acted without a second advisor, ($n = 99$; $M = 105.42$, $SD = 162.13$), $F(1, 144) = 5.04$, $p = .03$, $\eta_p^2 = .03$. When primary advisors were aware of the second advisor, 78.7% gave biased advice (10 dots or more above the correct number, the amount over which the advisee does not receive a reward) compared to 50.5% when the advisor was unaware of the second advisor, $\chi^2(1, N = 146) = 10.54$, $p = .001$.

Profit-maximizing frame. Primary advisors who knew about the second advisor reported a higher profit-maximizing frame score (including items such as a conscious decision to maximize their payoff and caring less about helping the advisee), ($M_{avg} = 3.65$, $SD = 1.06$) than

primary advisors who did not have, or know about, a second advisor (M_{avg} = 2.83, SD = 1.29), $F(1, 144) = 14.33$, $p < .001$, $\eta_p^2 = .09$.[4]

Profit-maximizing frame mediation analysis. We conducted a bootstrapping mediation analysis (Preacher & Hayes, 2004, 2008) for estimating direct and indirect effects on the advice given in the two situations (when advisors knew or didn't know about the second advisor) using the profit-maximizing frame as a mediating variable. The profit-maximizing frame significantly mediated the presence of the second advisor on the extent of bias in advice, demonstrated by a 95% confidence-interval (CI) that excluded zero [35.60, 107.71]. When the profit-maximizing frame was included in the model, the relationship between the presence of the second advisor and giving biased advice was no longer significant (reduced from β = 67.60, SE = 30.10, $t(144)$ = 2.25, p = .03 to β = -2.54, SE = 24.96, $t(143)$ = -0.10, p = .92), whereas the presence of the second advisor significantly affected the profit-maximizing frame (β = .82, SE = 0.22, $t(144)$ = 3.79, $p < .001$) and the profit-maximizing frame significantly affected the advice given (β = 85.69, SE = 9.17, $t(143) = 9.34$, $p < .001$). Thus, the profit-mediating frame mediated the relationship between the presence of the second advisor and giving biased advice.

Advisees.

Estimates. Advisees who received advice from only one advisor showed a significantly larger variance (24,527) in their estimates than advisees with two advisors (7,873); Levene's test for the equality of variances $F(1, 144) = 12.36$, $p = .001$. Advisees with two advisors were also more likely to be correct (within 10 dots), and receive the $5 gift card, than advisees with only

[4] Responses to each of the five statements significantly correlated in the predicted direction with the degree of bias in the advice (all $ps < .01$) and gave a significant difference in profit-maximizing behavior in the predicted direction between advisors who were aware of a second advisor and those that were not (all $ps < .007$).

one (conflicted) advisor (48.0% vs. 29.2%), $\chi^2(1, N = 146) = 4.68$, $p = .03$.[5] However, despite the increased bias from primary advisors who knew about the second advisor, there was no significant difference in the accuracy of advisees' estimates when the advisor knew versus when they did not know about the second advisor (see *Table 1*).

Weight on each source of advice. For advisees with two advisors ($n = 98$), regressing both the primary and secondary advisor's advice on the advisee's estimate revealed that advisees placed a greater weight on advice from the unconflicted second advisor ($\beta = .43$, SE = .12) than the conflicted primary advisor ($\beta = .22$, $SE = .05$), although advice from both advisors was positive and significant (both $ps < .001$) in predicting the estimate. When advisees had only one conflicted advisor ($n = 48$), the weight on advice ($\beta = .28$, $SE = .11$) was similar to that on the conflicted first advice when advisees had two advisors, and also significant in predicting the estimate ($p = .02$).

Trust in advice. A paired sample t-test revealed that advisees with two advisors found the unconflicted second advisors' advice more trustworthy ($M = 3.59$, $SD = .93$) than the conflicted primary advisors' advice ($M = 2.07$, $SD = .94$), $t(97) = 12.42$, $p < .001$. However, a between-subject comparison of trust ratings of conflicted primary advisors' advice shows that advisees with only one conflicted advisor rated this first (and only) advice as more trustworthy ($M = 2.71$, $SD = 1.32$) than the first advice of advisees who had two advisors ($M = 2.07$, $SD = .94$), $F(1, 144) = 11.18$, $p = .001$, $\eta_p^2 = .07$ (see *Table 1*).

[5] As the two advisee conditions did not hold the assumption of equal variance to conduct ANOVAs, we perform chi squares to test for significant differences in advisee accuracy in all experiments.

Discussion

When primary advisors knew about the second advisor, they gave more biased advice, and perhaps felt justified in doing so, as they openly indicated that they acted more selfishly, gave higher priority to maximizing their own payoff, and cared less about helping the advisee. These responses, averaged, mediated the relationship between the presence of a second advisor and giving biased advice.

One alternative explanation for increased bias in primary advisors, is that advisors may want to counteract the discounting the advisee may take upon receiving a second opinion [a phenomenon termed "strategic exaggeration" by Cain et. al. (2011)]. However, our profit-maximizing measure demonstrates that advisors are behaving in a more self-interested manner due to the presence of the second advisor. In our next study, we also demonstrate how the second advisor changes primary advisors' perceptions of what of is ethical and in our later studies 3 and 4 we show that strategic exaggeration is unlikely to account for the primary advisors' increase in bias.

Although they led to increased bias in primary advice, second opinions were still helpful in that advisees were better off if they received advice from two advisors, and, unsurprisingly, as they were aware of their advisors' incentives, advisees found the second advisors' advice more trustworthy than the primary advisors' advice. However, even when they had two advisors, advice from the first advisor still had an impact on the advisee's estimate.

Although these results document a previously unrecognized perverse effect of second opinions on the quality of primary advisors' advice, they also provide new support for the overall beneficial effects of second opinions, under the condition that the second opinion is a meaningful

signal highly correlated with the true value (otherwise it might distort the advisees' estimates even further—see Experiment 3).

Experiment 2: Optional and costly second advisors

The second experiment builds on the first by adding a condition in which advisees must pay to obtain a second opinion. We predicted that advisors' awareness that advisees faced this option, even without knowledge of whether it would be exercised, might lead conflicted primary advisors to provide more biased advice. Just the possibility that the advisee would seek a second opinion could invoke rationalizations which legitimize acting in a self-interested fashion (although advisors may not be conscious of these rationalizations or willing to admit that they used this rationalization to give more biased advice). We directly investigated the extent that advisors were consciously reframing their behavior as acceptable by asking primary advisors, who either faced, or did not face, the potential of being 'second guessed' by a second opinion, not only the extent of their profit-maximizing frame but also how ethical it was to give biased advice.

Method

Advisors. From the same online alumni participant pool, 418 new advisors (50% male, median age category=26-35 years) were paired with 268 new advisees. The methodology mainly replicates Experiment 1 with some additions. As before, there were primary conflicted advisors (n = 268) who were told the correct number of filled dots in the grid, and secondary unconflicted advisors (n = 150) who had unlimited access to the entire grid but were not told the correct number of filled dots. The task and incentives for secondary advisors were identical to those in

Experiment 1. For primary advisors, some acted as solo advisors (n = 93) and some were first advisors who were aware of a second advisor (n = 88). An extra conflicted primary advisor condition informed advisors that advisees had access to an *optional* unconflicted second advisor if they wanted to pay for one (n = 87), see Figure 3B.

After giving advice and answering the same five questions used in Experiment 1 to measure the profit-maximizing frame (α = .93), primary advisors were asked on a 5-point scale (1 = very unethical to 5 = very ethical), "How ethical or unethical do you think it was (or would be) to exaggerate your advice in this situation?"

Advisees. Two hundred and sixty eight advisees (57% male, median age category=26-35 years) received advice in one of three different conditions: from either one advisor (n = 93), two advisors (n = 88), or with an option to buy a second opinion (n = 87) for $2. At the start of the study, a $2 bonus was given to those advisees who had the option to buy a second opinion and to advisees who had only one advisor. In this way, all advisees had either (1) two advisors and no bonus (since advisees in the two advisor condition did not receive a bonus and the advisees in the optional second advisor condition had to use their $2 bonus to buy the second opinion), or (2) one advisor and a $2 bonus (i.e., the one advisor condition and the optional advisor condition where the advisee declined the second opinion). This made the conditions equivalent in terms of compensation. As before, advisees rated how much they trusted the recommendation(s).

Results

Advisors.

Advice. As in Experiment 1, primary advisors (with a conflict of interest) gave more biased advice than unconflicted secondary advisors, (*Mean deviation from correct number of*

filled dots (M) = 155.04, *SD* = 183.74 vs. *M* = 11.89, *SD* = 50.51), $F(1, 416) = 87.28$, $p < .001$, $\eta_p^2 = .17$. Again, unsurprisingly, since second advisors were not aware of the different conditions, they did not differ in the advice they gave if advisees had to pay for them or not, $F(1, 148) = 2.38$, $p = .13$, $\eta_p^2 = .02$ (see *Table 2* for means of all dependent variables and *eTable 2* for correlations).

More importantly, there was also a significant difference in advice given by primary advisors in the three conditions, $F(2, 265) = 4.09$, $p = .02$, $\eta_p^2 = .03$. Primary advisors in the two conditions in which they were aware of the presence of a second advisor (mandatory or optional) did not differ in the advice they gave, $t(265) = -.33$, $p = .74$, but, similar to the first experiment, gave significantly *more* biased advice than primary advisors acting as solo advisors, [free second advisor vs. no second advisor, $t(265) = 2.62$, $p = .009$; optional second advisor vs. no second advisor, $t(265) = 2.27$, $p = .02$]. The presence of both mandatory and optional second advisors increased the primary advisors' bias.

Profit-maximizing frame. The profit-maximizing frame ratings revealed a significant difference among the primary advisor conditions, $F(2, 265) = 7.91$, $p < .001$, $\eta_p^2 = .06$ (see *Table 2*)[6]: Primary advisors who knew about the free second advisor reported significantly higher profit-maximizing behavior than primary advisors who did not know about a second advisor, $t(265) = 3.98$, $p < .001$. Advisors aware of an optional second advisor reported marginally significantly higher profit-maximizing behavior compared to solo advisors, $t(265) = 1.82$, $p = .07$, but significantly lower than advisors aware of a free second advisor, $t(265) = 2.11$, $p = .04$. This suggests that advisors were especially prone to adopt, and admit to, a profit-maximizing

[6] As in Experiment 1, responses to each of the five statements significantly correlated in the predicted direction with the degree of bias in the advice (all *ps* < .01) and gave a significant difference in profit-maximizing behavior in the prediction direction between the three primary advisor conditions (all *ps* < .04).

frame when the second advisor was free and mandatory, that is, when the advisor knew that the advisee would definitely receive a second opinion.

Profit-maximizing frame mediation analysis. Bootstrapping mediation analysis for multi-categorical independent variables (Hayes & Preacher, 2014) revealed that the profit-maximizing frame significantly mediated the presence of the free second advisor on the extent of bias in advice, demonstrated by a 95% CI that excluded zero [42.58, 118.09] but did not mediate the presence of an optional second advisor on the advice given, 95% CI [-6.81, 73.99].

Rating of ethicality. Primary advisors in the three conditions differed in their ratings of how ethical it was to give biased advice, $F(2, 265) = 3.39$, $p = .04$, $\eta_p^2 = .03$. Advisors who were aware of the free second advisor were most likely to view exaggerating advice as ethical compared to those with no second advisor, $t(265) = 2.46$, $p = .01$, or an optional second advisor, $t(265) = 1.98$, $p = .05$, suggesting that they experienced fewer moral qualms in giving biased advice when the second advisor was free. Primary advisors with an optional second advisor or no second advisor viewed the situation as similarly (un)ethical, $t(265) = .45$, $p = .65$.

Ethicality mediation analysis. Bootstrapping mediation analysis (Hayes & Preacher, 2014) demonstrated that ethicality significantly mediated the effect of a free second advisor on the advice given, demonstrated by a 95% CI that excluded zero [5.21, 48.75], but did not mediate the effect of the optional second advisor on advice given 95% CI [-15.57, 25.20].[7]

Advisees.

Estimates. The variance of final estimates made by advisees with two advisors was smaller (4,344) than for advisees with an optional second advisor (16,686) and advisees with only one advisor (26,346), Levene Statistic $F(2, 265) = 15.20$, $p < .001$. As in Experiment 1,

[7] Multiple mediation bootstrapping analyses (Preacher & Hayes, 2008), in which both profit-maximizing frame and ethicality ratings are added as mediators in the same model, revealed similar results to the single mediator models.

despite the greater bias in advice from advisors who were aware of the potential for a second opinion, second opinions were beneficial to advisees in terms of accuracy. Advisees who received advice from two advisors, optional or not, were more likely to be correct (within 10 dots) than advisees with only one advisor, $\chi^2(2, N = 268) = 11.84$, $p = .003$. There was no significant difference in advisee accuracy between the free second advisor (44.3%) and the optional second advisor (40.2%) conditions, $\chi^2(1, N = 175) = .30$, $p = .58$, but each of these two conditions were significantly different from the no second advisor (21.5%) condition, [free second advisor vs. no second advisor, $\chi^2(1, N = 181) = 10.71$, $p = .001$; optional second advisor vs. no second advisor, $\chi^2(1, N = 180) = 7.43$, $p = .006$].

Buying advice. Given the option to buy advice from a second unconflicted advisor, 71.3% of advisees chose to do so. There was no difference in the primary advice given to those advisees who bought a second opinion and those who did not, $\beta = .002$, Wald statistic = 1.33, $p = .25$, but the more the advisee trusted the primary advice, the less likely they were to buy advice from a second advisor, $\beta = -.58$, Wald statistic = 5.66, $p = .02$. Those who purchased a second opinion were more likely to be accurate (48.4%) in their estimate than those who did not (20.0%), $\chi^2(1, N = 87) = 5.97$, $p = .02$. However, due to the cost of the second opinion, there was no significant difference in the mean payoff of advisees who bought the second opinion ($M =$ \$2.42, $SD = 2.52$) versus advisees who did not buy further advice ($M =$ \$3.00, $SD = 2.04$), $F(1, 85) = 1.05$, $p = .31$, $\eta_p^2 = .01$.

Weight on each source of advice. Again, regressing advice from both advisors on the estimate revealed that advisees with two advisors ($n = 150$) placed a greater weight on advice from the second unconflicted advisor ($\beta = .29$, $SE = .11$) than the first conflicted advisor ($\beta = .08$, $SE = .03$), but both were significant ($p < .01$) in predicting the estimate. When advisees had only

one advisor (n = 118), the weight on advice from this primary conflicted advisor was higher (β = .43, SE = .09) and significant ($p < .001$) in predicting the estimate.

Trust in advice. As in Experiment 1, a paired sample t-test revealed that advisees with two advisors found the second advice more trustworthy than the primary advice (M = 3.75, SD = .81 vs. M = 1.78, SD = .74), $t(148) = 19.24$, $p < .001$. A between-subjects comparison of the primary advice trust ratings across the three different conditions showed significant differences, $F(2, 265) = 11.75$, $p < .001$, $\eta_p^2 = .08$ see *Table 2*; those advisees with only one conflicted advisor rated the first advice as more trustworthy than advisees who had two advisors, $t(265) = 4.83$, $p < .001$, or the option of two advisors, $t(265) = 2.69$, $p = .008$. Interestingly, when advisees had to pay for a second advisor they found the first advice significantly more trustworthy than if the second advisor was free, $t(265) = 2.10$, $p = .04$.

Discussion

When primary advisors knew about a second advisor, they gave more biased advice. This was true even when the primary advisors were aware that the advisees would have to pay for the unconflicted second opinion and were unaware of whether the advisee would choose to do so. Primary advisors exaggerated the bias in their advice for their own personal gain regardless of whether the second opinion would be exercised, but primary advisors only explicitly registered their profit-maximizing frame, and reported that they believed it less unethical to give biased advice, when the second advisor was known to be free, so the second opinion was certain to be received. Primary advisors in the optional second advisor condition may be less conscious of their rationalizations or less willing to admit that they used rationalizations to engage in self-interested behavior. Prior research demonstrated that

physicians who rejected rationalizations that poor working conditions justify accepting industry gifts still reported that such gifts were acceptable when reminded of their professional hardships (Sah & Loewenstein, 2010). Similarly, in the optional second advisor condition, primary advisors may reject on some level their self-interested or profit-maximizing frame while still engaging in self-interested behavior.

These results suggest that simply having a market for second opinions (free or costly) can result in a decrease in the quality of advice from primary advisors, who indulge in their own self-interest if secondary advisors are available. Nevertheless, unconflicted second opinions were helpful to advisees even when they had to pay for them suggesting that, despite their impact on advisor bias, they could be an antidote to primary advisors' conflicts of interest. Those advisees who paid for a second opinion were significantly more accurate than those who did not; however, due to the high cost of purchasing a second opinion in our experiment, there was no significant difference in the final payoffs to advisees. Advisees trusted their primary advisors' advice more if they only had one advisor or had to pay for a second advisor; perhaps the cost or trouble of getting a second opinion motivated advisees to increase their trust in the primary advice.

Experiment 3: Varying second advisor expertise and cost

The first two experiments explored the situation in which second advisors were less informed than the primary advisor but were unconflicted. We found that primary advisors were likely to give more biased advice when they were aware that the advisee might get a second opinion. The conditions we examined, however, were deliberately designed to suppress the factors, displayed on the left-hand side of Figure 1 that would be likely to encourage advisors to

reduce bias (other than the second advisor having no conflicts), such as economic concerns (e.g., repeated interactions) or noneconomic costs such as social concerns due to easy verification of the poor quality advice. However, second opinions can vary in terms of expertise and cost. If the potential provision of second opinions (perhaps those with high expertise and low cost, which could expose poor quality advice from the primary advisor) led primary advisors to reduce their degree of bias instead of disinhibiting them to act in their own self-interest, then the availability of a second opinion could be an unambiguously good thing.

In experiment 3, we examined how the second advisors' expertise and cost (i.e., accessibility) impacts the quality of advice from primary advisors and the net benefit to advisees. As discussed, if second advisors are of high quality and easy to obtain, then primary advisors face a substantial risk that the second advisors' advice will draw attention to any inaccuracy in their advice. If this risk were perceived as substantial, we would expect the resulting potential exposure of the true advice may lead primary advisors to decrease the bias in their advice. In contrast, when second advisors were available but of low quality or high cost, we predicted that primary advisors would be more likely to increase the bias in their advice. To summarize, if advisors have noneconomic social concerns regarding giving biased advice, greater bias would be present when second opinions are of low quality and hard to access and less bias would be present when second opinions are of high quality and easy to access.

Method

Advisors. From the same online alumni participant pool, 321 new advisors (50% male, mean age = 47.38 years, *SD* =13.87; 215 primary conflicted advisors and 106 secondary unconflicted advisors) were paired with 215 advisees (see below). The same grid and incentives

for advisors (and advisees) were used as in the first two experiments. Primary conflicted advisors (n = 215) were again incentivized to recommend a high number of dots, and were informed about the correct number of filled dots in the grid. They were also told that, for a cost, the advisee could have access to an unconflicted second advisor. Primary advisors were randomized to one of four conditions regarding the quality and cost of the second advisors: high quality low cost (n = 56), high quality high cost (n = 52), low quality low cost (n = 51), and low quality high cost (n = 56)—see Figure 3C.

High quality unconflicted second advisors, whose incentives were again aligned with the advisees' as in the previous experiments, were also told the correct number of filled dots in the grid and so had the same high level of expertise as primary advisors; importantly, these unconflicted advisors had perfect information and so could verify the accuracy of the primary advisors' advice if advisees purchased the second advice. As in the previous two experiments, low quality second advisors also had incentives that aligned with those of advisees, but were not told the correct number of filled dots; unlike the prior experiments, in this experiment low quality second advisors only had access to the entire grid for 10 seconds, substantially reducing the potential quality of their advice.

Advisees could also pay either 50 cents (a low cost) or $3 (a high cost) for receiving the second advice. All (primary and secondary advisors as well as advisees) were fully informed of both the quality and cost of the second advisor that the advisees had potential access to. After giving advice, advisors were presented with the same questions as in the prior experiments, measuring the advisors' profit-maximizing frame (α = .92) and how ethical it was to give exaggerated advice. In addition, we asked advisors three questions to determine how responsible they felt towards the advisees: "I am responsible for the advisee's payoff", "I have an obligation

to provide the best advice to the advisee", and "The advisee is dependent on my advice to make the best decision" ($\alpha = .71$).

Advisees. Two hundred and fifteen students from an east coast U.S. university (57% male, mean age = 19.89 years, *SD* = 1.05) were randomized into four conditions to receive advice. The conditions, as already described, represented the characteristics of the second advisor who was available to the advisee. Advisees were informed at the start of the study that they had received either a 50 cent or $3 bonus (corresponding to the cost of the second advisor in the condition they were randomized to). This money could be used by advisees to buy the second opinion if they desired. Unlike experiment 2 in which the conditions were equivalent in terms of compensation, the asymmetry in cost made the differences in price between the conditions stronger. As before, advisees rated how much they trusted the advice.

Results

Advisors.

Advice. As in Experiments 1 and 2, conflicted primary advisors gave more biased advice than unconflicted secondary advisors, (*Mean deviation from correct answer (M)* = 120.48, *SD* = 144.91 vs. *M* = 21.95, *SD* = 60.69), $F(1, 319) = 45.05$, $p < .001$, $\eta^2 = .12$. To examine the main dependent variables, we conducted a one-way ANOVA with a planned contrast to examine whether the high quality low cost second advisor condition differed from the other three, and other contrasts to report the main effects of second advisor quality and cost.

The omnibus test revealed a significant difference in advice given by the primary advisors in the four conditions (see *Table 3* for means of all dependent variables and *eTable 3* for correlations), $F(3, 211) = 4.08$, $p = .008$, $\eta^2 = .06$. As predicted, the planned contrast revealed

that primary advisors who were aware that the second advisor was of high quality and low cost were less likely to give biased advice (M = 69.54, SD = 110.19) than primary advisors in any of the other three conditions (M = 138.42, SD = 151.56), $t(211) = 3.10$, $p = .002$. In other words, primary advisors in the high quality low cost second advisor condition reduced the bias in their advice.[8] Further, 44.6% of primary advisors gave biased advice (10 dots or more above the correct number, the amount over which the advisee does not receive a reward) in the high quality low costs condition compared to 67.3% of primary advisors in the other three conditions (67.3% is a similar percentage to the primary advisors giving biased advice in the optional second advisor condition in experiment 2).

Contrasts examining main effects revealed that primary advisors who were aware that the second advisor had low quality information gave significantly more biased advice (M = 150.03, SD = 158.36) than those who were aware that the second advisor had high quality information, (M = 91.20, SD = 123.63), $t(211) = 2.98$, $p = .003$. Primary advisors who were aware that the second advice was of high cost were also more likely to give more biased advice (M = 136.60, SD = 146.54) than those primary advisors who were aware it was of low cost (M = 104.21, SD = 142.07), although this was not significant, $t(211) = 1.54$, $p = .12$.

As would be expected, given that we manipulated the quality of the secondary advisors' information, there was a significant difference in the mean advice that unconflicted secondary advisors gave in the four conditions, $F(3, 102) = 15.44$, $p < .001$, $\eta^2 = .31$ (see *Table* 3). Not surprisingly, second advisors were more likely to give accurate recommendations (within 10

[8] The mean advice for conflicted primary advisors in the high quality low cost condition was significantly higher than the correct number of dots, $t(55) = 4.72$, $p < .001$. Although we cannot compare formally across experiments, the mean deviation from the correct number appears to be substantially less than that seen in the prior no second advisor conditions (Expt 1 = 120.02 and Expt 2 = 111.82). It, therefore, appears that the presence of a high quality low cost second advisor may have improved the quality of the conflicted primary advisor's advice compared to a situation of no second advisor.

dots) if they received the correct number of dots (94.2%) than if they had access to the grid for only 10 seconds (29.7%), $\chi^2(1, N = 106) = 39.34$, $p < .001$. There was a significant difference in the variance of the advice across conditions, Levene Statistic (3, 102) = 15.31, $p < .001$. The variance was significantly higher if second advisors had low quality information (8,406) compared to high quality (280), Levene Statistic (1, 104) = 61.44, $p < .001$, and higher for high cost secondary advisors (4,539) vs. low cost (3,101), Levene Statistic (1, 104) = 6.40, $p = .01$. The cost of the second advisor made no difference to the accuracy of the recommendation, $\chi^2(1, N = 106) = .92$, $p = .34$.

Profit-maximizing frame. The profit-maximizing frame ratings revealed a similar significant pattern to the advice, $F(3, 211) = 3.21$, $p = .02$, $\eta^2 = .04$ (see *Table 3*) with higher scores for primary advisors who were aware that the second advisor was of low quality (M = 3.40, SD = 1.33) than primary advisors aware that the second advisor was of high quality (M = 2.89, SD = 1.30), $t(211) = 2.79$, $p = .006$. The cost of the second advisor did not induce different profit-maximizing frames in the primary advisors, (M (high cost) = 3.26, SD = 1.34) vs. M (low cost) = 3.03, SD = 1.33), $t(211) = 1.17$, $p = .24$. The planned contrast revealed that primary advisors who were aware that the second advisor was of high quality and low cost were less likely to adopt a profit-maximizing frame than other primary advisors (M = 2.75, SD = 1.26 vs. M = 3.28, SD = 1.34), $t(211) = 2.58$, $p = .01$.[9]

This suggests that advisors were especially prone to adopt, and admit to, a profit-maximizing frame when the second advisor was of low quality, than when the primary advisor knew there was a chance that the second advisor could verify the primary advisor's advice.

[9] As in Experiment 1 and 2, primary advisors' responses to each of the five statements significantly correlated in the predicted direction with the degree of bias in the advice (all $ps < .01$) and gave a significant difference in profit-maximizing behavior in the predicted direction (all $ps < .04$).

Profit-maximizing frame mediation analysis. Bootstrapping mediation analysis for multi-categorical independent variables (Hayes & Preacher, 2014) revealed that the profit-maximizing frame was a significant mediator: With the high quality low cost condition as the baseline, the 95% CI excluded zero for the low quality low cost condition [8.21, 88.51] and the low quality high cost condition [18.54, 95.36] but not the high quality high cost condition which included zero [-14.61, 65.18].

Rating of ethicality. Primary advisors in the four conditions did not differ in their ratings of how ethical it was to give biased advice, $F(3, 211) = 1.01$, $p = .39$, $\eta^2 = .014$.

Responsibility. Primary advisors did not differ in how responsible they felt towards advisees, $F(3, 211) = .35$, $p = .79$, $\eta^2 = .005$.

Advisees.

Estimates. The variance of final estimates made by advisees in the four conditions were significantly different, Levene Statistic $(3, 211) = 11.82$, $p < .001$, with those advisees in the high quality low cost condition showing a smaller variance (3,821) than in the other three conditions (19,802). As predicted, advisees' accuracy varied by condition, $\chi^2(3, N = 215) = 74.87$, $p < .001$: Advisees who had high quality low cost second advisors were more likely to be correct (80.4%), than advisees with high quality high cost second advisors (46.2%), $\chi^2(1, N = 108) = 13.67$, $p < .001$, who, in turn, were more likely to be correct than advisees with low quality low cost second advisors (15.7%), $\chi^2(1, N = 103) = 11.16$, $p = .001$. Finally, advisees with low quality high cost second advisors were least likely to be correct (8.9%), although this was not significantly different from advisees with low quality low cost second advisors, $\chi^2(1, N = 107) = 1.14$, $p = .29$, see *Table 3*.

Buying advice. Given the option to buy advice from a second unconflicted advisor, 49.3% of advisees chose to do so. There was no difference in the primary advice given to those advisees who bought a second opinion and those who did not, β = .001, Wald statistic = 2.23, p = .14, but the more the advisee trusted the primary advice, the less likely they were to buy advice from a second advisor, β = -.39, Wald statistic = 9.78, p = .002. However, there was a significant difference by condition as to whether advisees bought a second opinion, $\chi^2(3, N = 215) = 41.65$, $p < .001$. Significantly more advisees purchased a second opinion when the second advisor was of high quality and low cost (78.6%) than when of high quality and high cost (48.1%) or low quality and low cost (52.9%) and particularly when second advisors were of low quality and high cost (17.9%).

Similar to Experiment 2, advisees who opted to pay for a second opinion were, on average, more likely to be accurate (66.0%) than those who didn't (11.0%), $\chi^2(1, N = 215) = 68.97$, $p < .001$. This was not true for advisees in the low quality high cost condition who were not more accurate if they bought the second opinion (10.0%) compared to those that did not buy it (8.9%), $\chi^2(1, N = 56) = .017$, $p = .64$; however in the other three conditions, buying a second opinion increased advisee accuracy: for those in the low quality low cost condition from 0% to 29.6%, $\chi^2(1, N = 51) = 8.43$, $p = .004$; high quality high cost condition from 14.8% to 80.0%, $\chi^2(1, N = 52) = 22.19$, $p < .001$; and high quality low cost condition from 33.3% to 98.2%, $\chi^2(1, N = 56) = 21.01$, $p < .001$.

In contrast to experiment 2, those who purchased a second opinion were likely to receive a higher payoff (M = \$3.30, SD = 2.38) than those who didn't (M = \$2.72, SD = 1.96), $F(1, 215) = 3.77$, $p = .05$, $\eta^2 = .02$. However, these results varied considerably depending on the cost and quality of the second opinion: Advisees with high quality low cost second advisors were better

off both in accuracy and financially from buying a second opinion (*M*(second opinion) = $4.66, *SD* = 1.27 vs. *M*(no second opinion) = $2.17, *SD* = 2.46), $F(1, 54) = 23.16$, $p < .001$, $\eta^2 = .30$; advisees with high quality high cost second advisors were more *accurate* if they bought a second opinion, but due to the high cost they were neither better nor worse off financially (*M*(second opinion) = $4.00, *SD* = 2.04 vs. *M*(no second opinion) = $3.74, *SD* = 1.81), $F(1, 50) = .24$, $p = .63$, $\eta^2 = .005$. Advisees with low quality low cost second opinions were both better off in accuracy and financially with a second opinion, (*M*(second opinion) = $1.48, *SD* = 2.33 vs. *M*(no second opinion) = $0.50, *SD* = 0.00), $F(1, 49) = 4.26$, $p = .044$, $\eta^2 = .08$ even though the accuracy and payoffs were much lower than those with high quality second advisors. Finally, advisees with low quality high cost second opinions were both not more accurate when buying a second opinion and financially much worse off (*M*(second opinion) = $0.50, *SD* = 1.58 vs. *M*(no second opinion) = $3.43, *SD* = 1.42), $F(1, 54) = 33.57$, $p < .001$, $\eta^2 = .38$.

Weight on each source of advice. For advisees who opted for a second advisor ($n = 106$), regressing the advice from both advisors on the estimate revealed that advisees placed greater weight on advice from the unconflicted second advisor ($\beta = .69$, $SE = .08$) than from the first ($\beta = .10$, $SE = .04$), but both were significant ($ps < .008$) in predicting the estimate. However, this varied by condition: When second advisors were of high quality and low cost, advisees who bought a second opinion ($n = 44$) placed a much higher significant weight on the second advisor ($\beta = 1.06$, $SE = .18$, $p < .001$) and seemed to ignore the guidance provided by the first advisor ($\beta = .02$, $SE = .03$, $p = .34$). For advisees in the high quality high cost condition ($n = 25$), neither advice was significant in predicting the estimate. And finally, for both the low quality conditions, advisees placed more weight on the second advisor, but both the first and second advice were significant in predicting the estimate (all *p's* < .04). When advisees had only one

(conflicted) advisor (n = 109), the weight on advice from this primary advisor was high (β = .58, SE = .09) and significant ($p < .001$) in predicting the estimate.

Trust in advice. As in Experiments 1 and 2, a paired sample t-test revealed that advisees with two advisors found the second advice more trustworthy than the first (M =4.04, SD = .89 vs. M = 2.18, SD = 1.05), $t(105) = 12.33$, $p < .001$. A between-subjects comparison of the trust ratings for the primary advice revealed significant differences across the four conditions, $F(3, 211) = 3.53$, $p = .02$, $\eta^2 = .05$, see *Table 3.* Advisees with high cost second advisors were more likely to trust the primary advice, $t(211) = 2.62$, $p = .009$, as were advisees with low quality second advisors, $t(211) = 1.81$, $p = .07$. As predicted, advisees with high quality low cost second advisors were less likely to trust the primary advice compared to advisees with any other type of second advisor, $t(211) = 2.59$, $p = .01$.

There were also significant differences for trust in the second unconflicted advisors' advice, $F(3, 102) = 10.29$, $p < .001$, see *Table 3*; those advisees with high quality advisors were more likely to trust the advice than advisees with low quality advisors, $t(102) = 4.80$, $p < .001$. There was no difference in trust due to the cost of the second advisor, $t(102) = .32$, $p = .75$.

Discussion

Only in the situation in which second advisors were unbiased experts and their advice was comparatively affordable, did primary advisors reduce the bias in their advice, most likely due to concern that the poor quality of their advice would be exposed. When the second advisor was costly or of lower quality than the first, primary advisors again (as in the first two studies) gave more biased advice as a result of the availability of a second opinion. When bias could not

be identified (either due to low quality or the high cost of second advisors), primary advisors exaggerated their recommendations for their personal gain.

These effects are unlikely to be explained by strategic exaggeration—primary advisors exaggerating their advice to counteract discounting the advisee may take upon receiving a second opinion. Since primary advisors' bias decreased when they were aware that the second opinion was of high quality and low cost, a decline in self-interested behavior appeared most likely due to concern that poor quality advice would be exposed. Also, primary advisors' bias increased when they were aware that the second opinion was of poor quality or high cost—situations in which they should assume that the second opinion would not have much influence on the advisee and would, hence, not need to be counteracted. If anything, high cost of a second opinion would decrease the need to strategically exaggerate but we find instead that primary advisors increase their bias. Although the presence of optional and poor low quality second advisors should undermine primary advisors' rationalizations to give biased advice, as also seen in experiment 2, primary advisors do not behave in a logical fashion and the mere presence of a second advisor increases bias.

Although neither our ethicality nor our responsibility measures varied due to the quality or cost of the optional second advisors, primary advisors' reported a higher profit-maximizing frame when they knew the second advice would be of low quality. These results suggest that primary advisors feel liberated to rationalize increasing their bias in a range of varying second advisor situations. Advisees benefited the most when second opinions were of low cost and high quality. In contrast, low quality second opinions, which may not help due to their low informational value, and high cost opinions which may not help because their cost deters their

usage or offsets their benefits, can both lead to worse outcomes by increasing primary advisors' bias.

Experiment 4: Multiple rounds

The prior experiment examined noneconomic reasons—social concerns (e.g., shame or social reputation concerns) that the advisors' poor quality advice would be exposed—as a reason for primary advisors to reduce bias in their advice. This concern appeared high for primary advisors when they were aware that second advisors were unconflicted, low cost and had perfect information. In many situations, however, it is difficult to tell whether advice is biased or not, and advisors usually do not have perfect information. Further, advisors may have economic concerns for not indulging in biased advice. This experiment was conducted to examine these factors.

We changed several aspects of the design in this final experiment to mimic other types of real-world advising. First, although primary and secondary advisors were of similar expertise, this time neither advisor had perfect information, i.e., no advisors were told the correct number of dots. Second, we informed primary advisors that the second advisor had already given advice and had been paid—thus primary advisors would not feel in competition with the second advisor to 'win' since the primary advice does not impact the second advisor. Third, we changed the incentives for primary advisors to more closely simulate real-world conflicts of interest and the likelihood of repeat business: Primary advisors could be modestly rewarded if the advisee was accurate (within 10 dots) but would receive more if they accepted a conflict and gave biased advice. Finally, and most important, we introduced economic concerns for primary advisors who were informed that they may be giving advice on several rounds. The likelihood for repeated

interactions in which the advisee could choose advisors would prompt reputational concerns in the mind of primary advisors. Those who would want repeat business would be likely to give better quality advice in order for advisees to return to them.

Method

Advisors. Six hundred and thirty two new primary (conflicted) advisors (54% male, mean age = 50.2 years, *SD* =15.60) were paired with 632 advisees. The same grid for advisors (and advisees) was used but the incentives for primary advisors were changed slightly. Primary conflicted advisors were told that they would receive $5 if the advisee gave a correct answer (within 10 dots) and $8 if the advisee gave an estimate 100 or more dots above the correct number. Primary advisors had access to the full grid but, this time, were not explicitly told the correct number of dots.

Primary advisors were randomized to one of four conditions in a 2 (second opinion: yes vs. no) x 2 (multiple rounds possible: yes vs. no) between subject design. For the second opinion, we used previously collected advice from unconflicted advisors and primary advisors were informed that that the second opinion came from previous participants who had viewed the same grid and had already been paid (to eliminate any need for competition with the second advisor). Primary advisors knew that the second advisors were unconflicted and also had access to the full grid.

For multiple round conditions, primary advisors were told "You may have the opportunity to give advice on a number of different grids (i.e., multiple rounds in which you may interact with the same advisee). Your advisee can choose to stay with the same advisor (you) or move to a different advisor after each round. If your advisee chooses another advisor, you may

not have the opportunity to give advice (or earn more money) again." For the non-multiple round conditions, primary advisors were told that there would only be one round to give advice.

After giving advice, advisors responded to questions as in the prior experiments, measuring the advisors' profit-maximizing frame ($\alpha = .86$), how ethical it was to give exaggerated advice, and how responsible they felt towards the advisees ($\alpha = .64$), and in addition, three questions to determine perceptions of advisee trust, "The advisee will trust my recommendation", "I believe the advisee will follow the advice that I give", and "The advisee is likely to discount the advice I recommend" (the latter question was reverse coded; $\alpha = .83$).

Advisees. Six hundred and thirty two advisees were randomized to receive advice from either one or two advisors. As in previous experiments, advisees gave an estimate and reported their trust in their advisor(s') recommendation(s). Advisees were again rewarded based on accuracy (within 10 dots).

Results

Advisors.

Advice. Conflicted primary advisors gave biased advice, significantly greater than the correct number of solid dots ($M = 46.10$, $SD = 108.00$), $t(631) = 10.73$, $p < .001$ (this was true for all four of the conditions, all $ps < .001$).[10] A 2 x 2 ANOVA (see *Table 4* for means of all dependent variables and *eTable 4* for correlations) revealed that, as predicted, primary advisors who thought there may be multiple rounds were significantly less likely to give biased advice ($M = 33.91$, $SD = 95.17$) than primary advisors informed that there would only be one round ($M =$

[10] Mean primary advice was lower than in previous experiments, most likely due to the new incentive structure (which had a more salient reward for giving accurate advice) and also due to advisors having imperfect information and thus some would underestimate the number of dots.

57.61, *SD* = 117.85), $F(1, 628) = 8.02$, $p = .005$, $\eta^2 = .01$. The main effect for the presence of a second opinion was not significant ($p = .31$) but there was a marginally significant interaction between the number of rounds and second opinion conditions, $F(1, 628) = 3.21$, $p = .07$, $\eta^2 = .005$. Simple effects analysis revealed that primary advisors aware of a second advisor significantly reduced the bias in their advice when they were informed that there may be potential multiple rounds versus just one round, $F(1, 628) = 10.65$, $p = .001$, $\eta^2 = .02$, whereas solo primary advisors did not differ in their advice due to multiple or single rounds, $F(1, 628) = .54$, $p = .46$, $\eta^2 = .001$. Further, for single rounds, primary advisors aware of a second advisor again increased the bias in their advice, $F(1, 628) = 4.09$, $p = .04$, $\eta^2 = .006$, whereas for multiple rounds, there was no difference in the level of bias in advice due to the presence of a second advisor, $F(1, 628) = .283$, $p = .60$, $\eta^2 < .001$.

Profit-maximizing frame. The profit-maximizing frame measure revealed only a main effect for the number of rounds; primary advisors reported a higher profit-maximizing score when told there would be only one round (*M* = 2.12, *SD* = 1.10) than primary advisors who were told there may be multiple rounds, (*M* = 1.93, *SD* = .80), $F(1, 623) = 6.26$, $p = .01$, $\eta^2 = .01$ (see *Table 4*). There was no difference in profit-maximizing frame for the number of advisors nor a significant interaction (both *ps* > .82).

Profit-maximizing frame mediation analysis. Bootstrapping mediation analysis revealed that the profit-maximizing frame significantly mediated the relationship between the number of rounds and the extent of bias in advice [2.43, 17.17].

Rating of ethicality. Primary advisors did not differ in their ratings of how ethical it was to give biased advice in any of the different conditions (all *ps* > .25), see *Table 4*.

Responsibility. Primary advisors did not differ in how responsible they felt towards advisees, (all *ps* > .19).

Perceived trust from advisee. Primary advisors were more likely to believe that the advisee would trust them, follow their advice and not discount the advice if there were multiple rounds (M = 3.12, SD = .73) than a single round, (M = 2.98, SD = .76), $F(1, 619) = 6.26$, $p = .01$, $\eta^2 = .01$. There was no difference in perceived trust for the presence of a second advisor nor a significant interaction (both *ps* > .15).

Advisees.

Estimates. The variance of estimates made by advisees in the four conditions were significantly different, Levene Statistic (3, 628) = 20.95, $p < .001$, with those advisees with solo advisors showing higher variances (18,367) than advisees with two advisors (5,479). Advisees were more likely to be correct if they had two advisors (41.4%) than just one conflicted advisor (22.3%), $\chi^2(1, N = 632) = 26.50$, $p < .001$; the number of rounds did not impact advisee accuracy, $\chi^2(1, N = 632) = 2.18$, $p = .14$ (see *Table* 4 for accuracy in all four conditions).

Weight on each source of advice. For advisees with two advisors (n = 314), regressing the advice from both advisors on the estimate revealed that these advisees placed a greater weight on advice from the unconflicted second advisor (β = .45, SE = .07) than from the first (β = .18, SE = .04), but both were significant (*ps* < .001) in predicting the estimate. When advisees had only one advisor (n = 318), the weight on advice from this primary advisor was high (β = .54, SE = .06) and significant ($p < .001$) in predicting the estimate.

Trust in advice. As in the previous experiments, a paired sample t-test revealed that advisees with two advisors found the second advice more trustworthy than the first (M =3.60, SD = .93 vs. M = 2.29, SD = 1.03), $t(309) = 16.44$, $p < .001$. A between-subjects comparison of the

trust ratings for the primary advice revealed a significant main effect for the number of advisors: advisees with only one advisor trusted the primary advice more (M = 2.70, SD = 1.17) then advisees with two advisors (M = 2.27, SD = 1.05), $F(1, 628) = 21.67$, $p < .001$, $\eta^2 = .03$, see *Table 4*. There was no significant effect for the number of rounds for both trust in the primary advice ($p = .75$) and second advice ($p = .21$), see *Table 4*.

Discussion

The potential for repeated interactions or future business had a large impact on conflicted primary advisors who reined in the bias in their advice. Although the bias was not eliminated entirely, the potential for repeat rounds mitigated any increased bias seen with the presence of a second advisor. Again strategic exaggeration to counteract advisee discounting due to the second advice would not account for these effects. Conflicted primary advisors aware of potential future business opportunities significantly reduced their profit-maximizing frame and reported that their advisees were more likely to trust and follow them. These findings were likely to stem from primary advisors' concerns regarding potential economic loss in future rounds if their advisees did not return to them. Since these conflicted advisors in the multiple round conditions gave better quality advice they reasonably thought that the advisees should trust and follow them more.

In contrast to experiments 1 and 2 in which the second advisor was free, our profit-maximizing frame and ethicality measures did not increase with the presence of a second advisors. In the prior experiments, primary advisors were informed of the true value of correct dots and thus had to deliberately and consciously lie to recommend a higher number of dots. We expected rationalizations to be more accessible in the minds of these primary advisors in order to

justify their actions and reframe their unethical behavior as falling within ethical boundaries. In the current experiment, the true value was unknown to primary advisors and thus bias could have operated at a subconscious level which could account for the lack of variation in our measures of profit-maximizing and ethicality.

Advisees again were substantially more accurate with a second unconflicted advisor than just one advisor. Although, primary advisors with multiple rounds reduced the bias in their advice, the benefit of a second opinion that was free of bias appeared of greater importance in terms of advisee accuracy. Both the previous experiment and this one highlight economic and noneconomic concerns that lead conflicted advisors to rein in the bias in their advice.

General Discussion

Second opinions are often encouraged, particularly in the many industries and situations in which advisors are subject to conflicts of interest. Our overall results, in fact, mostly support such a positive appraisal. Aside from advisees who had poor quality high cost second opinions (which left them financially worse off and did not improve their accuracy), for most of the advisees in our experiments, having a second advisor was beneficial in terms of accuracy, whether it was mandatory, free, or taken voluntarily at a cost. Thus, second opinions appear to be an antidote to primary advisors' conflicts of interest, even when second advisors have less expertise. Despite the fact that second opinions were beneficial to most of our advisees, however, our findings also point to potential pitfalls of second opinions that could, in some situations, have perverse unintended consequences.

Specifically, our experiments point to an adverse consequence of second opinions that has not, to the best of our knowledge, been discussed in prior work: the potential for advisors to

give more biased advice when they are aware that their advisees have access to a second opinion. Giving more biased advice seems to result from a variety of rationalizations which were particularly highlighted in the first two experiments. First, primary advisors dealing with advisees who had access to second opinions were more likely to adopt a profit-maximizing frame, admitting that they were maximizing their self-interest and reporting that they were less willing to help their advisee. Second, although giving biased advice was construed as unethical by the majority of advisors, primary advisors who knew that their advisees would have free access to another advisor before making a decision reported that it was less unethical to give biased advice, as compared with advisors who were not aware that their advisees could or would obtain a second opinion.

Less surprisingly, but importantly for policy, we also observed factors that mitigated the adverse impact of second opinions on the quality of primary advice. The likelihood to give more biased advice in the presence of a second opinion was reduced when primary advisors were concerned that the poor quality of their advice would be exposed (a noneconomic social concern of being exposed as behaving in a selfish or unethical manner) and when primary advisors were concerned about losing future business (an economic concern).

For advisees, although access to high quality second advisors was beneficial, having a second advisor also reduced trust in the primary advisor's advice. Having trust in your primary advisor is usually a good thing—relationships work well when built on trust. However, for trust to persist, relationship exchanges must be honest (or appear to be honest). Certainly, it is a good thing for advisees to not fully trust conflicted advisors. However, even if it is naïve for advisees to blindly trust conflicted primary advisors, it is also damaging if advisees become untrusting of, and less likely to follow, expert advice.

Theoretical contributions

Beyond providing new insights into when second opinions are likely to help or hurt advisees, the current research also contributes to prior literature on advice, rationalizations and moral disengagement. As previous work on advice has documented, second opinions are generally beneficial, particularly when correcting for random error (Hastie & Kameda, 2005; Soll & Larrick, 2009; Taylor & Potts, 2008; Yaniv, 2004). We extend this finding and demonstrate that second opinions are also beneficial in correcting biased judgments from conflicts of interest.

Further, prior work on rationalizations and moral disengagement have revealed that people regularly engage in unethical acts without violating their moral self-identity (Bazerman & Tenbrunsel, 2011; Mazar et al., 2008; Moore et al., 2012). Our research suggests that the potential availability of second opinions can provide one more rationalization that people, and specifically advisors, can use to rationalize self-interested, and potentially unethical, behavior. The results for primary advisors are surprising against the backdrop of research showing a preference for fairness in distributive games (Engel, 2011). For example, in dictator games, dictators rarely take advantage of the opportunity to take all the money (Camerer, 2003; Forsythe, Horowitz, Savin, & Sefton, 1994). In our experiments, many of the primary advisors, who knew that their advisee might obtain a second opinion, gave advice that, if followed, would have led to a zero payoff for the advisee and would have maximized the advisors' own payoff. Just as dictators who are given a reason for having the privileged position, or given some uncertainty between their action and outcome, act more selfishly (Dana et al., 2007; Hoffman et al., 1994), primary advisors in our studies acted more selfishly in the presence of a mandatory or

optional second advisor. Advisors engaged in less profit-maximizing behavior when they believed they were the only advisor to the advisee as well as when they feared that their bias might be revealed or there were economic consequences for giving biased advice.

Although primary advisors aware of an optional costly second advisor gave advice (Experiments 2 and 3) just as biased as advisors aware of a free mandatory second advisor, they were not as forthright in admitting their profit-maximizing frame and rated giving biased advice as unethical as advisors who were not aware of any second advisor. Primary advisors who were not explicitly aware of the correct advice to give (Experiment 4) displayed a similar pattern of greater bias in the presence of a second advisor but no admission of a higher profit-maximizing frame or ethical behavior. This suggests that primary advisors may have been less aware of the extent of their bias or rationalizations or they did not want to admit to these rationalizations explicitly. Future research could explore aspects of conscious and subconscious bias and moral disengagement more specifically (as previously suggested, see Detert, Treviño, & Sweitzer, 2008), as well as exploring the specific psychological mechanisms from economic and noneconomic concerns that lead to decreased bias in primary advisors.

In additional to our theoretical contributions, our research has practical implications that policy makers should consider. Our findings add to a nascent body of literature that show that policies that may have been primarily designed to improve advisee decision-making, such as disclosure and second opinions, may actually have greater effects on consumer welfare by improving the quality of advice from advisors. If reputational or social concerns motivate advisors to reject conflicts of interest or rein in bias (Sah, 2014; Sah & Loewenstein, 2014), then more merit should be given to policies that increase the transparency of advisors' incentives.

Limitations

Although our experiments were incentivized to examine behavior and choices with real monetary consequences, generalizing from these findings to real world contexts should be done with caution. One could argue that the weight of ethical concerns in our experiments was low relative to the real world (Jones, 1991). In real world contexts, however, the temptations or conflicts that confront advisors may also be greater (Bekelman, Li, & Gross, 2003; Demski, 2003), and the ability to rationalize could also be higher due to the greater complexities of real-life. We found both economic and noneconomic concerns had a large effect on advisor behavior in our experiments, and we would expect both of these concerns to be important to advisors in the real world.

With regard to our experimental design, it is important to note that we set up the second opinions, particularly in experiments one, two and four, to be helpful to advisees—they were independent from the primary advice and secondary advisors were motivated to give high quality advice. Although our second advisors' incentives aligned with the advisees' (a factor that should reduce bias in primary advisors), our setup did not account for relationship concerns that, in real word settings, could discourage self-interested behavior in primary advisors. Our experiments three and four attempted to mimic some reputational and social concerns by highlighting that an easily accessible unbiased expert could verify any bias in the primary advisors' recommendation (experiment three) and by introducing repeated interactions (experiment four) in which future business may be a consequence of the quality of advice given previously. As predicted, in these situations, we observed decreased bias in primary advice. This is encouraging; future research could attempt to identify other factors that determine whether second opinions lead to more or less bias on the part of advisors. Nevertheless, our studies also warn that the right circumstances

and psychological factors, including our ability to rationalize, can enable advisors to morally disengage and give more biased advice.

Factors that influence whether second opinions could be beneficial

Second opinions are costly to obtain in terms of time and money, and thus it is important to know whether they have benefits or potential unintended consequences. Our studies help to identify some factors that, in combination, should determine whether second opinions will be beneficial in natural organizational contexts. First, and most obviously, the more expertise the second opinion advisor has, and the more independent and free of bias it is, the more likely it is to be helpful. Advisees will benefit directly from receiving a high quality second opinion and primary advisors may reduce the bias in their advice if they are aware that advisees can access a high quality second advisor relatively easily. This means that even advisees who don't receive a second opinion will benefit from obtaining less biased advice from their primary advisors. However, if secondary advisors are of low quality, have their own conflicts of interest, agendas to compete with or befriend the primary advisor, or are otherwise not motivated to provide quality advice, the extra advice may not be at all advantageous and could make matters worse.

Second, if the presence of a second opinion increases primary advisors' bias, the impact of the second opinion depends on the quality of the second opinion, the amount of bias in the primary advisors' advice and the ability of the advisee to correctly discount and weight each advice input. As previously mentioned, the degree and direction of bias in the primary advisors' advice due to the presence of second opinions may depend on factors (as outlined in Figure 1) such as the primary advisors' perception of the likely quality and accessibility of the second

opinion, whether the quality of advice from either advisor is verifiable, and whether the primary advisor is concerned with his or her reputation or future business.

Finally, in real world contexts, second opinions are rarely mandatory, and our research suggests that the fraction of advisees that opt to pursue them is critical for whether the net effect of their availability is beneficial. In our optional second opinion conditions (Experiments two and three), trust in the advice was a key factor in the decision to purchase more advice. Trust in the advice, however, was independent of the quality of advice received. Prior research has also noted that advisees take advice for reasons independent of advice quality (Sah, Loewenstein, et al., 2013; Sah, Moore, & MacCoun, 2013; Sniezek & Van Swol, 2001). For example, advisees are less likely to purchase verification data on advisors if advisors deliver advice with high confidence regardless of the quality of advice (Sah, et al., 2013). Furthermore, it is often difficult to verify if advice is biased or not. In many situations, e.g., in medicine, many different treatment or investigation options exist (Sah, 2015). Good advice can often lead to bad outcomes and vice versa, thus the use of sanctions or an advisor's concern for reputation may not be enough or even appropriate to control bias in advice (Jensen & Raver, 2012; Tenbrunsel & Messick, 1999) or alert advisees to potentially biased advice. This highlights some concern regarding the likelihood of advisees opting to seek out a second opinion if it is costly or not mandatory to do so.

In our experiments it was relatively effortless for advisees to obtain a second opinion—it was either given to them freely or offered for a cost but without any impact on the relationship with the primary advisor. An established advisor-advisee relationship is likely to thrive on trust, and thus seeking a second opinion is even less likely due to existing trust in the relationship, the potential cost, and the possibility of offending the primary advisor (Sah, Loewenstein, & Cain,

2014; Schwartz et al., 2011). Advisees may also be motivated to trust their advisors (Gibbons et al., 1998), and reassure themselves that their advisor, despite any conflicts, is unlikely to give biased advice. In combination, our results suggest that having second opinions available, but unused, might be the worst situation in terms of producing perverse effects with no benefits.

Ways to decrease the potential increased bias in primary advisors

In addition to advisors being concerned that future business relies on giving good quality advice, one potential policy that could increase the likelihood that second opinions will provide advantages without producing perverse effects would be to provide high quality second opinions at reasonable costs. Since second advisors will vary in cost and expertise compared to primary advisors, institutions that make second opinions more confidential could both encourage advisees to get second opinions (without fear of insulting their primary advisors) and could reduce their pernicious impact on the quality of primary opinions. On the other hand, hiding second opinions from primary advisors could, to the extent that second opinions reveal the truth to advisees, also reduce social and reputational concerns, producing a countervailing negative (bias-increasing) effect.

In addition, increasing advisor empathy towards advisees may also help to reducing bias in advice. Prior research has demonstrated that receiving advice one-on-one (and making sure the advisor knows something about you) tends to lead to less biased advice since it increases the advisor's empathy towards the single advice-recipient (Sah & Loewenstein, 2012) in a similar way that a single identified victim provokes greater empathy than multiple victims (Kogut & Ritov, 2005). Furthermore, increasing situational cues to behave ethically (Anand et al., 2004; Aquino, Freeman, Reed II, Lim, & Felps, 2009; Tenbrunsel & Messick, 2004) or increasing a

sense of professional responsibility towards advisees may promote the provision of unbiased advice. If advisors have a choice to accept or reject conflicts of interest, a disclosure policy, in itself, may also reduce bias if advisors become motivated to reject conflicts of interest to signal trust be declaring the absence of any conflicts of interest (Sah & Loewenstein, 2014). In the absence of economic concerns, the ability to increase empathy towards advisees, recognize the ethical implications of giving biased advice, and attend to professional ethical norms may sway advisors away from the temptation to succumb to conflicts of interest.

Conclusion

Our results do not suggest that second opinions are always good or bad for advisees, or that they always increase the bias in primary advisors' recommendations. Instead, our experiments are intended to highlight the complexities of the interpersonal dynamics of second opinions and to identify some of the factors that determine whether second opinions are, or are not, beneficial for advisees. Our findings also underline the importance of understanding the economic and psychological mechanisms underlying policy interventions. The existence of both direct and indirect effects and the difficulty in predicting when they will occur reinforces the value of experimentation to understand mechanisms that led, in our experiments, to both beneficial but also unintended consequences from second opinions. Our findings also highlight the importance of pilot-testing policy interventions to determine if they are working as intended.

In the best of all worlds, moreover, second opinions should not be necessary because policies should be implemented that reduce, manage, or even eliminate conflicts of interest. Following on from the quote at the start of this paper, Ross Sorkin (2012) advises, "the goal… should not be to patch up a shoddy process but to find a way to avoid the conflict from the start."

When it is feasible, eliminating conflicts of interest is a more attractive policy than facilitating second opinions; doing so promotes trust in primary advisors and renders the expense (and potential perverse effects) of second opinions obsolete. Realistically, however, it is not often possible to eliminate all conflicts of interest in the marketplace. Our current research adds to a body of literature supporting the benefits of multiple opinions. Additionally, our findings suggest that the ability to access high quality second opinions at reasonable costs might best serve advisees to correct for random noise and biases, including bias from primary advisors' conflicts of interest.

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Table 1. Mean dependent variables, Experiment 1

	Primary Advisor Conditions (N = 146)		
		Paired Primary Advisor (n = 98)	
	Solo Primary Advisor (n = 48)	Unaware of second advisor (n = 51)	Aware of second advisor (n = 47)
Primary advisors' advice (mean deviation from correct number of filled dots)	120.02 (191.58)	91.69 (128.94)	173.02 (185.43)
Secondary advisors' advice (mean deviation from correction number of filled dots)	*n/a*	16.25 (76.53)	5.70 (52.55)
Biased advice (% primary advisors giving advice 10 or more above correct number—above which the advisee receives no reward)	45.8%	54.9%	78.7%
Biased advice (% primary advisors giving advice 100 or more above correct number—above which would give advisors $10 gift card if advisee followed it)	41.7%	49.0%	61.7%
Profit-maximizing frame *Scale 1 (Strongly disagree) to 5 (Strongly agree)*	2.83 (1.24)	2.83 (1.35)	3.65 (1.06)

Advisee estimate (% correct within 10 dots and receiving $5.00 gift card)	29.2%	47.1%	48.9%
I trusted my (primary) advisor's recommendation *Scale 1 (Strongly disagree) to 5 (Strongly agree)*	2.71 (1.32)	2.14 (1.00)	2.00 (.89)
I trusted my (secondary) advisor's recommendation *Scale 1 (Strongly disagree) to 5 (Strongly agree)*	*n/a*	3.69 (.70)	3.99 (.69)

Note: *SDs* are given in parentheses.

Table 2. Mean dependent variables, Experiment 2

	Primary Advisor Conditions (N = 268)		
	No Second Advisor (n = 93)	Optional Costly Second Advisor (n = 87)	Mandatory Free Second Advisor (n = 88)
Primary advisors' advice (mean deviation from correct number of filled dots)	111.82 (162.12)	173.41 (193.98)	182.57 (188.46)
Secondary advisors' advice (mean deviation from correction number of filled dots)	*n/a*	19.44* (58.00)	6.57 (44.07)
Biased advice (% primary advisors giving advice 10 or more above correct number—above which the advisee receives no reward)	53.8%	63.2%	75.0%
Biased advice (% primary advisors giving advice 100 or more above correct number—above which would give advisors $10 gift card if advisee followed it)	43.0%	51.7%	63.6%
Profit-maximizing frame *Scale 1 (Strongly disagree) to 5 (Strongly agree)*	2.90 (1.38)	3.26 (1.38)	3.68 (1.19)
Rating of Ethicality *Scale 1 (Very unethical) to 5 (Very ethical)*	2.80 (.88)	2.86 (.99)	3.16 (1.10)
Advisee estimate (% correct within 10 dots)	21.5%	40.2%	44.3%
I trusted my [primary] advisor's recommendation *Scale 1 (Strongly disagree) to 5 (Strongly agree)*	2.41 (1.06)	2.03 (.98)	1.74 (.72)

I trusted my [secondary] advisor's recommendation *Scale 1 (Strongly disagree) to 5 (Strongly agree)*	*n/a*	3.74* (.75)	3.76 (.85)
Advisee payoff: % receiving			
- no gift card (inaccurate)	0	36.8%	55.7%
- $2.00 gift card (inaccurate)	78.5%	23.0%	0
- $5.00 gift card (accurate)	0	34.5%	44.3%
- $7.00 gift card (accurate)	21.5%	5.7%	0

Note: *SDs* are given in parentheses. *n = 62

Table 3. Mean dependent variables, Experiment 3

	Conditions based on second advisor (N = 215)			
	High quality low cost (n = 56)	High quality high cost (n = 52)	Low quality low cost (n = 51)	Low quality high cost (n = 56)
Primary advisors' advice (mean deviation from correct number of filled dots)	69.54 (110.19)	114.54 (133.81)	142.27 (163.13)	157.09 (155.84)
Secondary advisors' advice (mean deviation from correction number of filled dots)*	2.00 (14.25)	7.00 (20.30)	32.26 (86.16)	119.30 (77.71)
Biased advice (% primary advisors giving advice 10 or more above correct number—above which the advisee receives no reward)	44.6%	59.6%	66.7%	75.0%
Biased advice (% primary advisors giving advice 100 or more above correct number—above which would give advisors $10 gift card if advisee followed it)	37.5%	48.1%	52.9%	62.5%
Profit-maximizing frame *Scale 1 (Strongly disagree) to 5 (Strongly agree)*	2.75 (1.26)	3.04 (1.34)	3.33 (1.34)	3.46 (1.32)
Rating of Ethicality *Scale 1 (Very unethical) to 5 (Very ethical)*	2.77 (.87)	2.96 (1.14)	2.92 (.96)	3.09 (.96)
Responsibility *Scale 1 (Strongly disagree) to 5 (Strongly agree)*	2.93 (.94)	3.01 (1.01)	2.89 (.94)	2.82 (1.12)

Advisee estimate (% correct within 10 dots)	80.4%	46.2%	15.7%	8.9%
I trusted my [primary] advisor's recommendation *Scale 1 (Strongly disagree) to 5 (Strongly agree)*	2.09 (1.05)	2.50 (1.04)	2.37 (1.15)	2.79 (1.33)
I trusted my [secondary] advisor's recommendation* *Scale 1 (Strongly disagree) to 5 (Strongly agree)*	4.41 (.69)	4.24 (.66)	3.44 (.93)	3.50 (1.08)
Advisee payoff: % receiving				
- no gift card (second opinion, inaccurate)	5.4%	9.6%	37.3%	16.1%
- $0.50 gift card (no second opinion, inaccurate)	14.3%	0	47.1%	0
- $3.00 gift card (no second opinion, inaccurate)	0	44.2%	0	75.0%
- $5.00 gift card (second opinion, accurate)	73.2%	38.5%	15.7%	1.8%
- $5.50 gift card (no second opinion, accurate)	7.1%	0	0	0
- $8.00 gift card (no second opinion accurate)	0	7.7%	0	7.1%

Note: *SDs* are given in parentheses. *Secondary advisors have different *n*'s (see main text and *Figure 3C*)

Table 4. Mean dependent variables, Experiment 4

	Primary Advisor Conditions (N = 632)			
	One round (N = 325)		Multiple rounds (N = 307)	
	Solo primary advisor	Second advisor	Solo primary advisor	Second advisor
Primary advisors' advice (mean deviation above correct number)	46.19 (117.26)	70.29 (117.58)	37.30 (93.57)	30.79 (96.81)
Secondary advisors' advice (mean deviation above correct number)	-	17.66 (50.46)	-	17.93 (54.58)
Biased advice (% primary advisors giving advice 100 or more above correct number—above which would give advisors $8 gift card if advisee followed it)	23.4%	28.6%	17.0%	15.0%
Profit-maximizing frame *Scale 1 (Strongly disagree) to 5 (Strongly agree)*	2.13 (1.17)	2.11 (1.03)	1.92 (.78)	1.94 (.82)
Rating of Ethicality *Scale 1 (Very unethical) to 5 (Very ethical)*	2.49 (.83)	2.61 (.97)	2.46 (.92)	2.51 (.89)
Responsibility *Scale 1 (Strongly disagree) to 5 (Strongly agree)*	3.45 (.85)	3.38 (.89)	3.49 (.83)	3.51 (.80)
Perceptions of Advisee Trust *Scale 1 (Strongly disagree) to 5 (Strongly agree)*	3.00 (.80)	2.95 (.71)	3.18 (.73)	3.06 (.72)

Advisee estimate (% correct within 10 dots)	23.4%	46.8%	21.1%	36.3%
I trusted my [primary] advisor's recommendation Scale 1 (Strongly disagree) to 5 (Strongly agree)	2.79 (1.07)	2.20 (1.06)	2.59 (1.28)	2.35 (1.04)
I trusted my [secondary] advisor's recommendation Scale 1 (Strongly disagree) to 5 (Strongly agree)	-	3.66 (.97)	-	3.53 (.88)

Note: *SDs* are given in parentheses.

Figure 1. **Factors that increase or decrease the quality of the primary advisors' advice with awareness of the presence of a second opinion.**

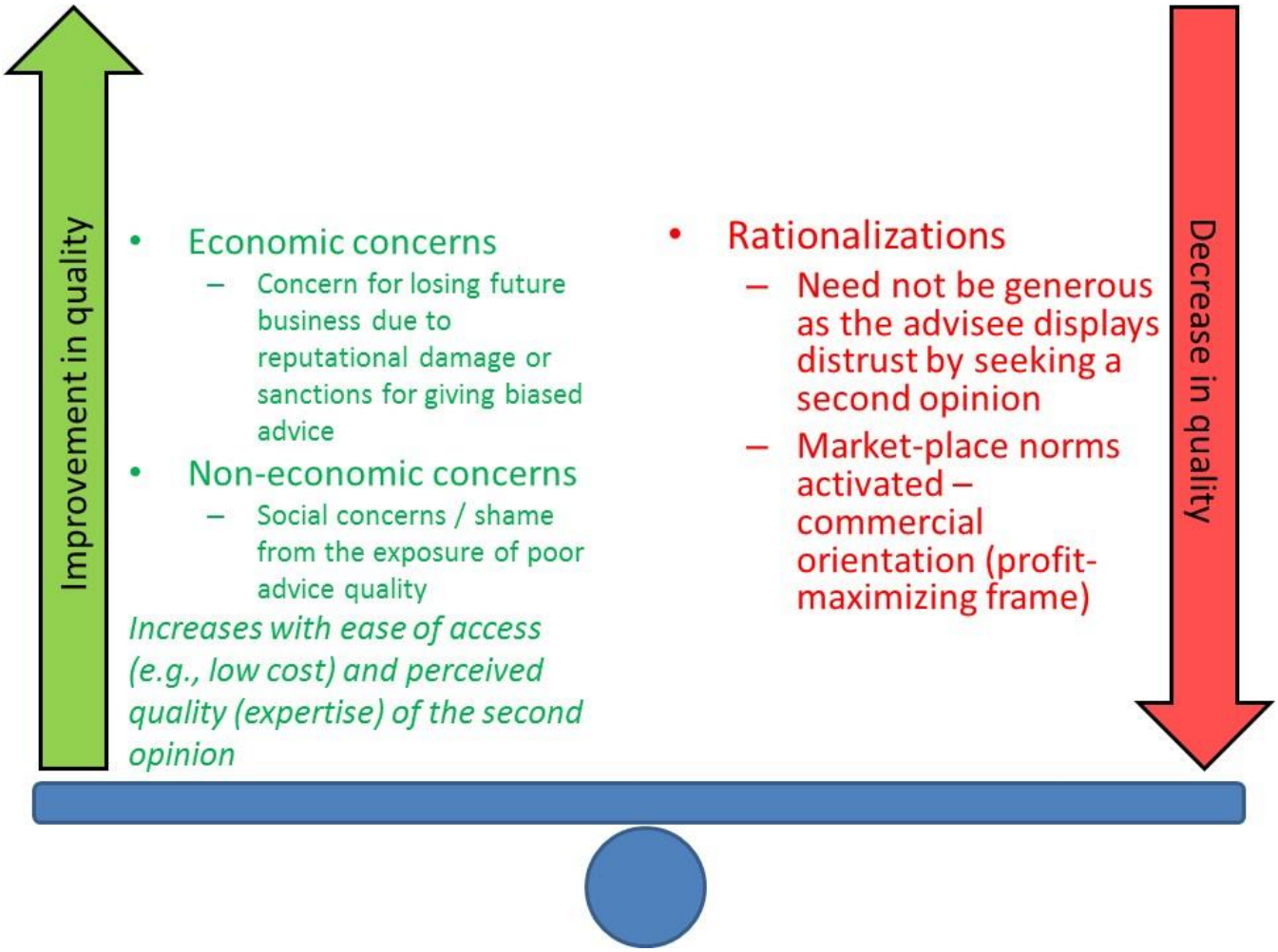
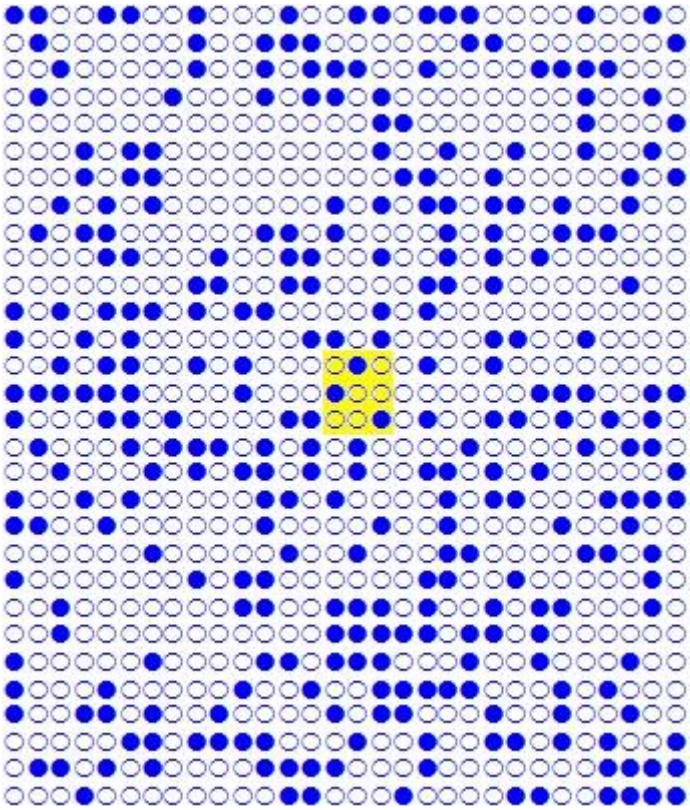


Figure 2. **A: Full 30 x 30 grid of dots; B: 3 x 3 portion of dots**

A

What the advisor sees

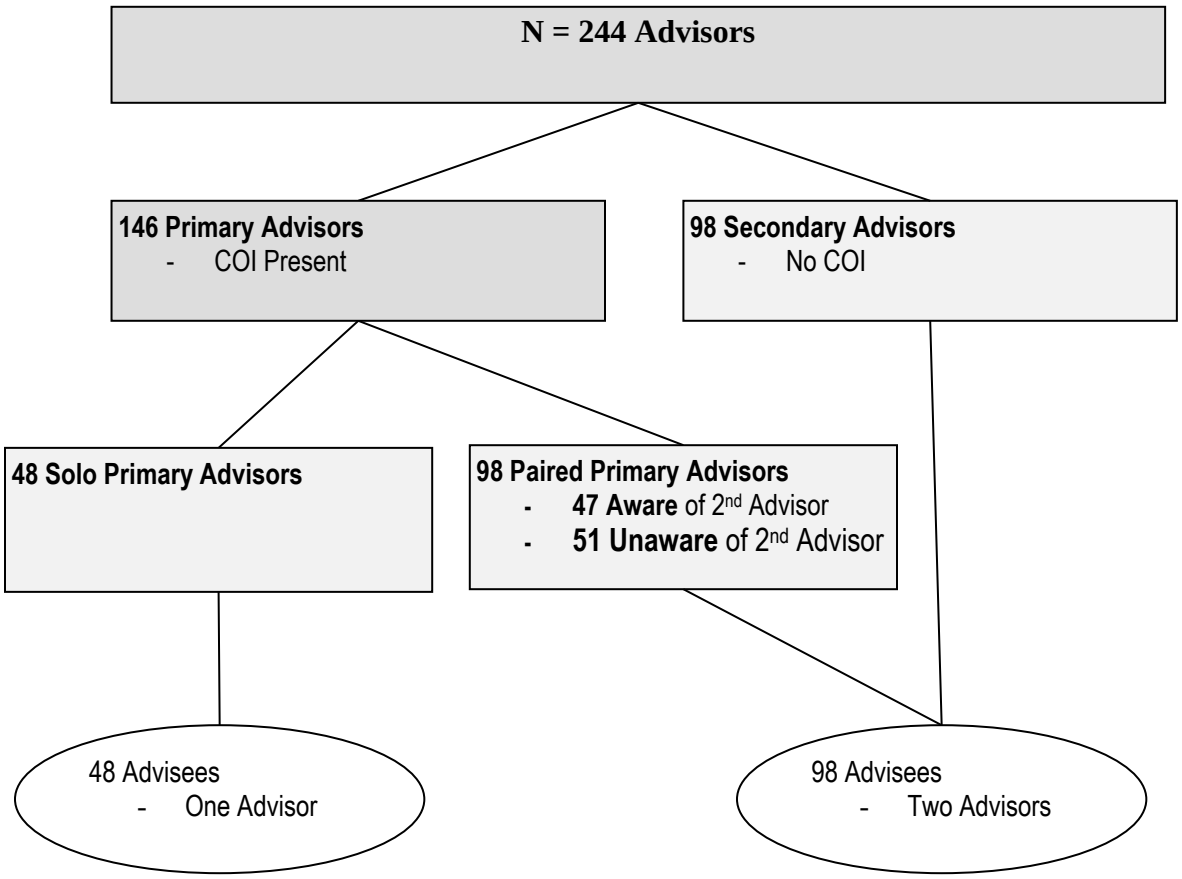


B

What the advisee sees

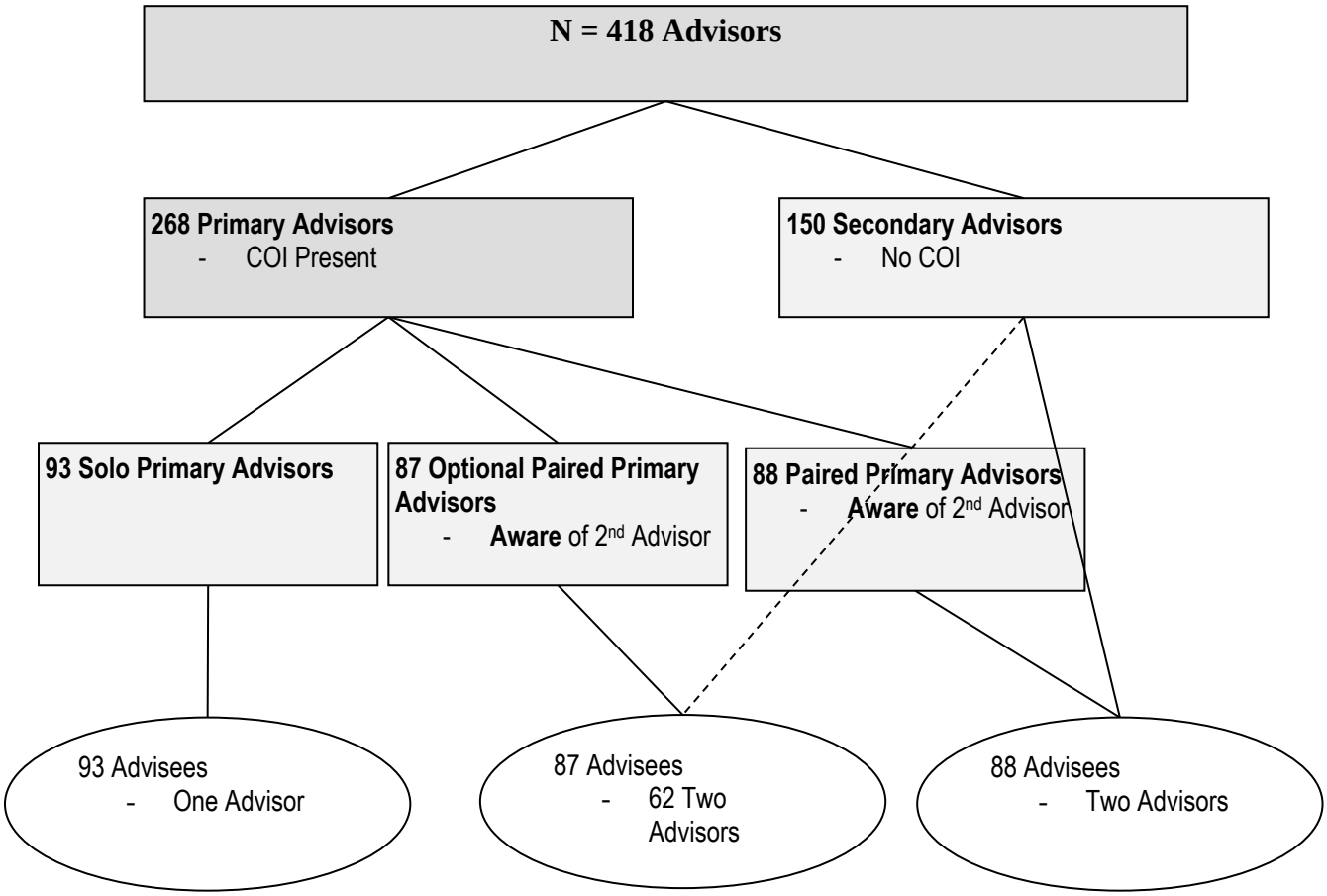
The correct number of filled dots in the large grid is 301. The advisees' 3 x 3 view reflected an approximately proportional amount with 3 of the 9 dots filled.

Figure 3A: Study participants in Experiment 1



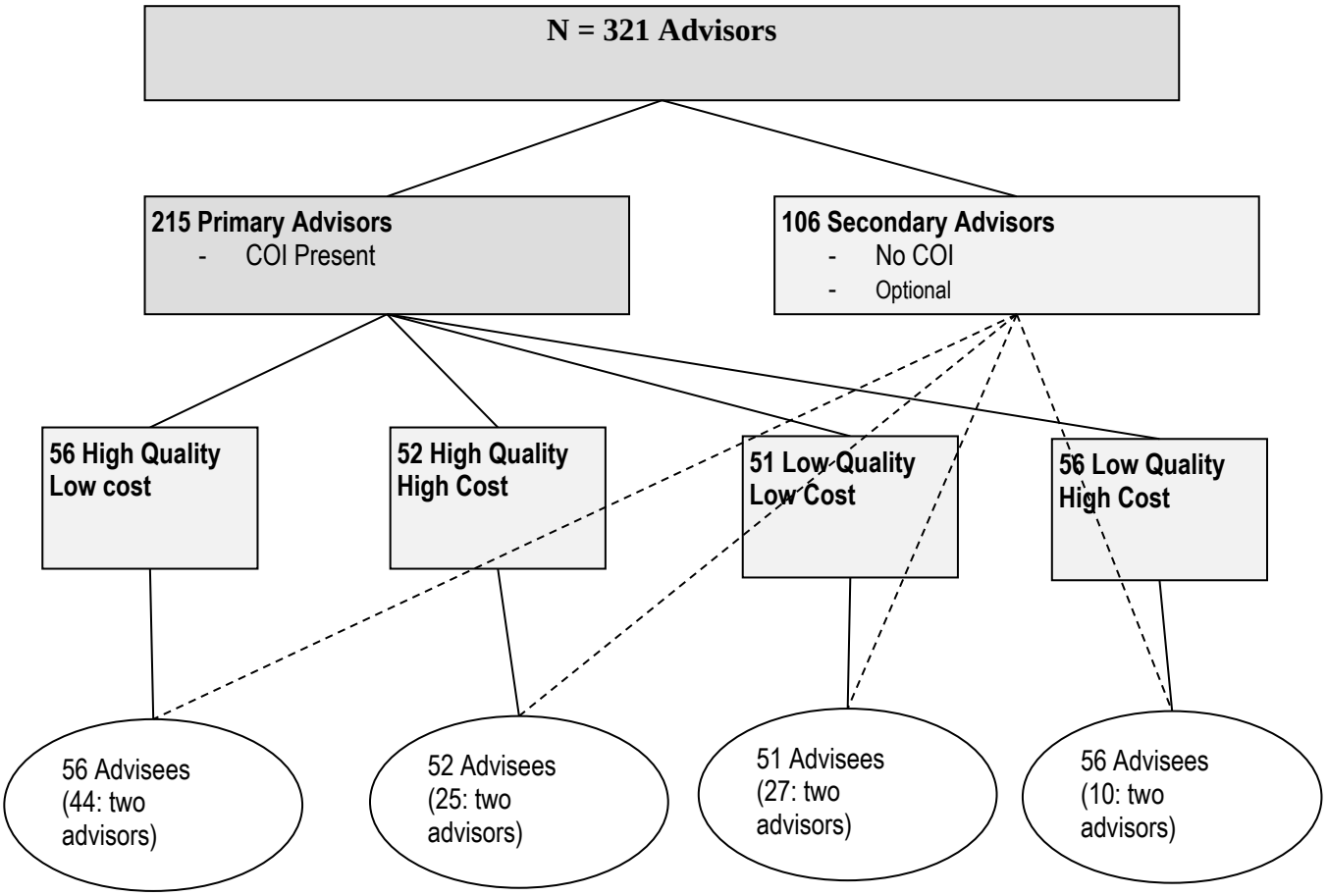
COI: Conflict of Interest

Figure 3B: Study participants in Experiment 2



COI: Conflict of Interest

Figure 3C: Study participants in Experiment 3



COI: Conflict of Interest